

Exhibit 12 Part 16

Part 7 of Attachment L to the Allocation Recommendation Report (ARR2575-ARR2662)

United States' Motion to Enter Consent Decree,
United States v. Alden Leeds, Inc. et al., Civil Action No. 22-7326 (D.N.J.)

Allocation Facility Cmass Calculation

Occidental Chemical Corp.

80 & 120 Lister Avenue

Newark

NJ

07105

Constituent Of Concern (COC)	Overland, Fate & Transport C%	Dmass Overland, Fate & Transport	PrePVSC C%	Dmass PrePVSC	PVSC C%	Dmass PVSC	Direct Discharge C%	Dmass Direct Discharge	COC Total Pathway Cmass	COC A%	COC Historic CMass
Copper	100.00%	51.58	100.00%	-	0.00%	-	100.00%	-	51.58	1.018817E-2	0.53
Lead	100.00%	162.51	100.00%	-	0.00%	-	100.00%	-	162.51	1.018817E-2	1.66
Mercury	100.00%	2.61	100.00%	-	0.00%	-	100.00%	-	2.61	1.018817E-2	0.03
HPAHs	100.00%	4.15	100.00%	-	0.00%	-	100.00%	181.3	185.41	1.018817E-2	1.89
LPAHs	100.00%	6.74	100.00%	-	0.00%	-	100.00%	51.8	58.55	1.018817E-2	0.6
PCBs	100.00%	0.49	100.00%	-	0.00%	-	100.00%	119.7	120.2	1.018817E-2	1.22
DDx	100.00%	265.61	100.00%	-	0.00%	-	100.00%	1,673.1	1,938.72	1.018817E-2	19.75
Dieldrin	100.00%	-	100.00%	-	0.00%	-	100.00%	0.1	0.14	1.018817E-2	0
Dioxins_Furans	100.00%	347.69	100.00%	-	0.00%	2,045.94	100.00%	3,382.0	3,729.71	1.018817E-2	38.

Allocation Facility COC Base Scores - Protocol Calculation

Occidental Chemical Corp.

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Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	COC Historic CMass	COC Relative Contribution	COC Base Score
Copper	0.69	2,100,000.00	0.53	2.502E-7	1.727E-7
Lead	0.01	3,200,000.00	1.66	5.174E-7	5.174E-9
Mercury	0.95	42,000.00	0.03	6.331E-7	6.015E-7
HPAHs	0.05	240,000.00	1.89	7.871E-6	3.935E-7
LPAHs	0.01	170,000.00	0.6	3.509E-6	3.509E-8
PCBs	12.87	26,000.00	1.22	4.710E-5	6.062E-4
DDx	1.37	27,000.00	19.75	7.316E-4	1.002E-3
Dieldrin	0.13	390.00	0	3.537E-6	4.598E-7
Dioxins_Furans	83.92	38.00	38.	1.000E+0	8.392E+1

Allocation Facility COC Base Scores - Alternative Calculation

Occidental Chemical Corp.

80 & 120 Lister Avenue

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Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	Total Cmass (TCmass)	Total OS COC ACmass	COC %	COC Historic CMass	Facility OS COC Cmass	COC Relative Responsibility	COC Base Score
Copper	0.69	2,100,000.00	276,960.25	2,097,178.28	1.862E-4	0.53	390.57	1.862E-4	1.285E-4
Lead	0.01	3,200,000.00	288,577.67	3,197,059.92	5.631E-4	1.66	1,800.4	5.631E-4	5.631E-6
Mercury	0.95	42,000.00	4,322.53	41,955.96	6.038E-4	0.03	25.33	6.038E-4	5.736E-4
HPAHs	0.05	240,000.00	4,346,388.50	195,718.24	4.266E-5	1.89	8.35	4.266E-5	2.133E-6
LPAHs	0.01	170,000.00	3,012,835.14	139,304.72	1.943E-5	0.6	2.71	1.943E-5	1.943E-7
PCBs	12.87	26,000.00	20,066.54	25,795.56	5.990E-3	1.22	154.52	5.990E-3	7.709E-2
DDx	1.37	27,000.00	2,516.93	26,974.36	7.703E-1	19.75	20,777.58	7.703E-1	1.055E+0
Dieldrin	0.13	390.00	1.27	389.99	1.070E-1	0	41.72	1.070E-1	1.391E-2
Dioxins_Furans	83.92	38.00	3,729.82	0.00	1.000E+0	38.	0	1.000E+0	8.392E+1

Facility Bypass Information

Occidental Chemical Corp.

80 & 120 Lister Avenue

Newark

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Item	Bypass Name	Bypass Type	Time %	Flow %	Bypass Notes
1	Newark Bay	Bypass	0.00%	0.00%	Did not discharge waste into the Passaic river

Discharge Calcs	POTW Discharge Information	COMMENTS/NOTES
15,000	gal discharged per day/week/month	Connected to PVSC in 1956, but only the 2,4-D and 2,4,5-T plants connected.
24	# hours/per day discharged	15000gpd from 2,4-D and 2,4,5-T (PAP-00162277)
7	#days/week discharged	
52	#weeks/yr discharged	
5,460,000	calc gal/yr discharge	
1956	Yr Ops started	
1986	Yr Ops ceased	
30	calc #yrs facility operated	
Copper (Cu)		
30	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Lead (Pb)		
30	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Mercury (Hg)		
30	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
HPAHs		
30	#yrs facility discharged	
-	calc mg/L O&G	
10%	% O&G that is considered PAHs	
50%	% COC in O&G considered as PAHs	
-	calc mg/L HPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
LPAHs		
30	#yrs facility discharged	
-	calc mg/L O&G	
10%	% O&G that is considered PAHs	
50%	% COC in O&G considered as PAHs	
-	calc mg/L LPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
PCBs		
22	#yrs facility discharged within PCBs Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
DDx		
17	#yrs facility discharged within DDx Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dieldrin		
31	#yrs facility discharged within Dieldrin Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxins/Furans		
30	#yrs facility discharged	
3.30	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
2,045.94	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4-D		
31	#yrs facility discharged within 2,4-D Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,5-T		
30	#yrs facility discharged within 2,4,5-T Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,6-TCP		
20	#yrs facility discharged within 2,4,6-TCP Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Summary DMassCOC for POTW:		
-	kg Copper	
-	kg Lead	
-	kg Mercury	
-	kg HPAHs	
-	kg LPAHs	
-	kg PCBs	
-	kg DDx	
-	kg Dieldrin	
2,045.94	kg Dioxins/Furans	

Discharge Calcs	Direct Discharge Information	COMMENTS/NOTES
	# hours/day discharged	From 1946-1956 all discharges directly to the Passaic River (PAS-00128425-26)
	# days/week discharged	After 1956 15000 gpd went to PVSC (PAP-00162277)
	# weeks/yr discharged	All storm water (as well as groundwater migration) to the Passaic River, with documentation.
10,742,932	# gals/yr directly discharged	Assume storm water flow for 5.6 acres
4.08	ft; 30yr average annual precipitation per Rutgers information	30,000 gpd process wastewater (PAS-001284474)
43,560	ft2 per acre	
5.60	acres	
50%	Percent Precip to River	
1946	Yr Ops started	
1986	Yr Ops ceased	
40	calc #hrs facility operated	
Copper (Cu)		
40	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Lead (Pb)		
40	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Mercury (Hg)		
40	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
HPAhs		Estimating all COCs based on Soil Data, Groundwater Data, Sump Sampling Data, etc.
40	#yrs facility discharged	February 1985 Sampling Data = 334,000 ug/kg = 334 mg/kg; assume 0.334 mg/l
0.11	calc mg/L COC discharged	May 1985 Soil Sampling Data = 111,500 ug/kg = 111.5 mg/kg; assume 0.1115 mg/l
3.785	L per gallon (Merck Index)	February 1985 GW Sampling Data = .174 mg/l; assume .000174 mg/l
0.000001	kg per mg (Merck Index)	1994 Remedial Design Investigation Sampling Data = .099mg/l; assume .000099 mg/l
181.26	calc kg COC discharged	
LPAHs		Estimating all COCs based on Soil Data, Groundwater Data, Sump Sampling Data, etc.
40	#yrs facility discharged	February 1985 Sampling Data = 83,180 ug/kg= 83.180 mg/kg; assume .083180mg/l
0.03	calc mg/L COC discharged	May 1985 Soil Sampling Data = 42,600 ug/kg=42.6 mg/kg; assume .0426mg/l
3.785	L per gallon (Merck Index)	February 1985 GW Sampling Data = 1.556 mg/l; assume .001556 mg/l
0.000001	kg per mg (Merck Index)	1994 Remedial Design Investigation Sampling Data = .078mg/l; assume .000078 mg/l
51.81	calc kg COC discharged	
PCBs		Estimating all COCs based on Soil Data, Groundwater Data, Sump Sampling Data, etc.
32	#yrs facility discharged within PCBs Timeline	
0.092	calc mg/L COC discharged	Total PCB concentrations in Sumps A5, A9, A10 and A11 (1984 data)
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
119.71	calc kg COC discharged	
DDx		Estimating all COCs based on Soil Data, Groundwater Data, Sump Sampling Data, etc.
27	#yrs facility discharged within DDX Timeline	February 1985 Sampling Data = 5569000 ug/kg = 5569 mg/kg; assume 5.556 mg/l
1.52	calc mg/L COC discharged	May 1985 Soil Sampling Data = 504,600 ug/kg= 504.6 mg/kg; assume 0.5046 mg/l
3.785	L per gallon (Merck Index)	February 1985 GW Sampling Data = 35.054 mg/l; assume 0.035054 mg/l
0.000001	kg per mg (Merck Index)	1994 Remedial Design Investigation Sampling Data = .1671mg/l; assume .0001671 mg/l
1,673.11	calc kg COC discharged	
Dieldrin		
37	#yrs facility discharged within Dieldrin Timeline	1983 Soil Data (PAS-00125457-51)
0.00009	calc mg/L COC discharged	Dieldrin = .09mg/kg; assume .00009 mg/l
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
0.1354	calc kg COC discharged	
Dioxins/Furans		
25	#yrs facility discharged	25 years (Direct process discharges during dioxin-generating operations)
3.30	calc mg/L COC discharged	Average dioxin concentration measured in sumps, product and process streams. Divide sump (residue) and product material concentrations by 10 to get process wastestream concentration (FDR Pgs 22, 44).
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
3,354.61	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4-D		Estimating all COCs based on Soil Data, Groundwater Data, Sump Sampling Data, etc.
41	#yrs facility discharged within 2,4-D Timeline	February 1985 Sampling Data = 85000 ug/kg=85 mg/kg; assume 0.085 mg/l
0.0118	calc mg/L COC discharged	May 1985 Soil Sampling Data = 280 ug/kg=0.280 mg/kg; assume .000028mg/l
3.785	L per gallon (Merck Index)	February 1985 GW Sampling Data = 27 mg/l; assume .027 mg/l
0.000001	kg per mg (Merck Index)	
19.7	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,5-T		Estimating all COCs based on Soil Data, Groundwater Data, Sump Sampling Data, etc.
40	#yrs facility discharged within 2,4,5-T Timeline	February 1985 Sampling Data = 86,000 ug/kg= 86 mg/kg; assume 0.0086 mg/l
0.005	calc mg/L COC discharged	May 1985 Soil Sampling Data = 400 ug/kg=0.4 mg/kg; assume .00004 mg/l
3.785	L per gallon (Merck Index)	February 1985 GW Sampling Data = 5.600 mg/l; assume 0.0056mg/l
0.000001	kg per mg (Merck Index)	
7.67	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,6-TCP		
26	#yrs facility discharged within 2,4,6-TCP Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Summary DMassCOC for Direct Discharge:		
-	kg Copper	
-	kg Lead	
-	kg Mercury	
181.26	kg HPAHs	
51.81	kg LPAHs	
119.71	kg PCBs	
3,673	kg DDX	
0.1354	kg Dieldrin	
3,382.02	kg Dioxins/Furans	

Discharge Calcs	Direct Discharge Information	ASSUMPTIONS, REFERENCES	COMMENTS/NOTES
	4.08 FEET/YEAR AVERAGE PRECIPITATION	Long term average annual precipitation includes floods and hurricane events occurring over time.	Data from Rutgers University.
	<u>3.4 ACRES - TOTAL SITE AREA (acres)</u>	PAS-00126895, PAS-001226915, FDR	
	<u>2.5 ACRES - AFFECTED AREA</u>	Rough estimate of site area with exposed soil fill determined from review of historical aerial photographs 1995-2020 (Google Earth) and Figure 1 Allocation Facilities map.	
	4,046.86 METERS ² /ACRE		
	10,117 METERS ² (AFFECTED AREA)		
	<u>0.0001 METERS/YEAR (ERODED SOIL THICKNESS)</u>	For this estimate, used a surface soil erosion rate of 0.1 mm/year, or 0.004 inches/year.	
	<u>1 METERS³/YEAR (ERODED SOIL VOLUME)</u>	VOLUME/YEAR DISCHARGED	
	1946 Year site operations began	Operator from 1946-1969	
	1986 Year site processing and storage operations ceased	Owner 80 Lister Ave 1946-1971 and 1986; Lessor 80 Lister Ave 1957-1971, Owner 80 Lister Ave 1986; Owner 120 Lister Ave 1984-1986	
	<u>40 NUMBER YEARS DISCHARGE</u>		
	<u>40 METERS³ (TOTAL SOIL VOLUME DISCHARGED OVER TIME)</u>		
	<u>1,746 KG/M³ SOIL DENSITY</u>	Fill reported as Organic Silt (PAP-00160669). Bulk density range 1394 KG/M ³ to 2098 KG/M ³ , so use average. (http://structx.com/Soil_Properties_002.html)	
	<u>70,658 KILOGRAMS (TOTAL SOIL DISCHARGED OVER TIME)</u>		
Copper (Cu)			
	<u>40 YEARS DISCHARGED</u>		
	<u>730 MG/KG (MAX CONCENTRATION)</u>	Maximum detected concentration of Copper in soils from 120 Lister Avenue Site Evaluation - May 1985 (Depth = 0-6 inches) (FDR page 49)	PAP-00160683 and PAS-00127158 indicate this should be 730 rather than 350
	<u>0.000001 kg per mg (Merck Index)</u>		
	<u>52 KILOGRAMS DISCHARGED</u>		
Lead (Pb)			
	<u>40 YEARS DISCHARGED</u>		
	<u>2300 MG/KG (AVERAGE CONCENTRATION)</u>	Maximum detected concentration of lead in soils from 120 Lister Avenue Site Evaluation - May 1985 (Depth = 12-24 inches) (FDR page 49)	PAP-00160683 and PAS-00127158 indicate this should be 2300 rather than 880
	<u>0.000001 kg per mg (Merck Index)</u>		
	<u>163 KILOGRAMS DISCHARGED</u>		
Mercury (Hg)			
	<u>40 YEARS DISCHARGED</u>		
	<u>37.0 MG/KG (MAX CONCENTRATION)</u>	Maximum detected concentration of mercury in soils from 120 Lister Avenue Site Evaluation - May 1985 (Depth = 0-6 inches) (FDR page 49)	PAS-00127149 and PAP-00160683 indicate this should be 37 rather than 10.3
	<u>0.000001 kg per mg (Merck Index)</u>		
	<u>3 KILOGRAMS DISCHARGED</u>		

PAHs (listed in Benzo(a)pyrene Equivalent conversion table)

40 YEARS DISCHARGED
58.7 MG/KG (TOTAL PAH AVERAGE CONCENTRATION)

0.000001 kg per mg (Merck Index)

4 KILOGRAMS DISCHARGED

PAHs (others detected)
40 YEARS DISCHARGED
95.36 MG/KG (TOTAL PAH MAX CONCENTRATION)
0.000001 kg per mg (Merck Index)

7 KILOGRAMS DISCHARGED

PCBs
40 YEARS DISCHARGED
6.9 MG/KG (MAX OF REPORTED CONCENTRATIONS)

0.000001 kg per mg (Merck Index)

0.49 KILOGRAMS DISCHARGED

DDx
27 YEARS DISCHARGED within DDx Timeline
5569 MG/KG (MAX CONCENTRATION)3.785 L per gallon (Merck Index)
0.000001 kg per mg (Merck Index)

266 KILOGRAMS DISCHARGED

Dieldrin
0 YEARS DISCHARGED
MG/KG (MAX CONCENTRATION)
3.785 L per gallon (Merck Index)

0.000001 kg per mg (Merck Index)

0 KILOGRAMS DISCHARGED

Dioxins/Furans
40 YEARS DISCHARGED
50 MG/KG (MAX CONCENTRATION)
0.000001 kg per mg (Merck Index)

4 calc kg COC discharged

Total concentration of PAH compounds for Benzo(a)pyrene Equivalent
<https://floridadep.gov/waste/petroleum-restoration/documents/benzo-pyrene-equivalents-conversion-table-one-sample>

Max concentrations from samples 1-2 ft bgs (PAS-00127145-6, PAP-00160683)

Data below the Benzo(a)pyrene Equivalent Table

Contaminant	Concentration (mg/kg)	Toxic Equivalency Factor	Benzo(a)pyrene Equivalents
Benzo(a)pyrene	44.000	1.0	44.0000
Benzo(a)anthracene	47.000	0.1	4.7000
Benzo(b)fluoranthene	71.000	0.1	7.1000
Benzo(k)fluoranthene	71.000	0.01	0.7100
Chrysene	120.000	0.001	0.1200
Dibenz(a,h)anthracene	0.000	1.0	0.0000
Indeno(1,2,3-cd)pyrene	21.000	0.1	2.1000

DE Residential = 0.1 mg/kg, DE Industrial = 0.7 mg/kg

Total Benzo(a)pyrene Equivalents = 58.7

Max concentrations from samples 1-2 ft bgs (PAS-00127145-6, PAP-00160683)	
Anthracene	1.2
Acenaphthene	0
Acenaphthylene	0.86
Fluorene	0.3
Naphthalene	11
Phenanthrene	61
2-Methylnaphthalene	21
SUM	95.36

Discharge Calcs	Direct Discharge Information	NOTES, COMMENTS, REFERENCES
	1950 YEAR STARTED	2,4, 6 TCP Production time period 1950-1975 - assume production for entire period>
	1975 Ended Production of 2,4, 6 TCP	
	25 NUMBER YEARS DISCHARGE	
Dioxins/Furans		Per PAP-00160076 (Paulus, Sokowski and Sartier Engineer Report, 1987) significant TCP air emissions via exhaust fans. After controls 0.06#/hr discharged via mist emissions.
	25 YEARS DISCHARGED	assume 24 hr operation for 25 years of production per TCP commercial production time period
	MG/KG (CONCENTRATION)	.06#/hr*8 hr=0.48#/day*365 days=175.2#/yr=79.3 kg/yr x 25 years = 1984.14 kg
0.000001 kg per mg (Merck Index)	Per PAP-0016076, 5 Rupture disk releases at 1.2# per release	assume 1/10 reaches river directly = 198.4 kg
201 calc kg COC discharged	Sum of calculated values from D71, D72, E71, E72	
SUMMARY CMASS ESTIMATES:		
201.11 kg Dioxins/Furans		
201.11 MASS (KG) DISCHARGED BY OVERLAND FLOW		

Discharge Calcs

Direct Discharge Information

NOTES, COMMENTS, REFERENCES

1960 YEAR of Explosion

1960 TCP Unit explosion in 5 story building. Entire Building destroyed, with dioxin spread throughout the plant and nearby property. Document PAP-00160016 indicated 1/3# of dioxin released.

Dioxins/Furans

? YEARS DISCHARGED

MG/KG (CONCENTRATION)

0.000001 kg per mg (Merck Index)

142.851 calc kg COC discharged

1/3# dioxin released from explosion = .333# = 0.151 kg

Building chip samples = .13ug/kg - 6.3 mg/kg dioxane>> avg = 3.15 mg/kg dioxin

assume 10,000,000 pounds of building materials

10,000,000 # = 4,530,000 kg x 3.15 mg/kg = 1426979 mg = 14269.5 kg dioxin

assume 1/100th reaches the river = 142.7 kg dioxin

SUMMARY CMASS ESTIMATES:

142.851 kg Dioxins/Furans

142.85 MASS (KG) DISCHARGED BY OVERLAND FLOW

Discharge Calcs

Direct Discharge Information
4.08 FEET/YEAR AVERAGE PRECIPITATION

NOTES, COMMENTS, REFERENCES

Long term average annual precipitation includes floods and hurricane events occurring over time. Data from Rutgers University.

13 ACRES - TOTAL SITE AREA (acres)
7.50 ACRES - AFFECTED AREA

ISRA Investigation Report dated 8/2020 indicated that AOC 26 - Dioxin contamination was from Occidental Site Operations (PAP-00126516). Both reports referenced in the Sherwin Williams FDR.

4,046.86 METERS²/ACRE

Sherwin Williams report references a DDT Solution overflow from a rail tanker at the Occidental Site that ran down the tracks to the Sherwin Williams Facility. Document PAP-00145018-19 referenced in the Sherwin Williams FDR is a deposition that discusses the overflow but provides no information or data.

30,351 METERS² (AFFECTED AREA)

0.0001 METERS/YEAR (ERODED SOIL THICKNESS)

For this estimate, used a surface soil erosion rate of 0.1 mm/year, or 0.004 inches/year.

3 METERS³/YEAR (ERODED SOIL VOLUME)

1946 Year site operations began

Occidental Facility Operations

1986 Year site processing and storage operations ceased

40 NUMBER YEARS DISCHARGE

121 METERS³ (TOTAL SOIL VOLUME DISCHARGED OVER TIME)

1,746 KG/M³ SOIL DENSITY

Fill reported as Organic Silt (PAP-00160669). Bulk density range 1394 KG/M³ to 2098 KG/M³, so use average. (http://structx.com/Soil_Properties_002.html)

211,975 KILOGRAMS (TOTAL WT OF SOIL AFFECTED OVER TIME)

Dioxins/Furans

40 YEARS DISCHARGED
0.0235 MG/KG (CONCENTRATION)

Highest concentration of Dioxins was 23.5 ug/kg from the Deed Notice (PAP-00367345)

0.000001 kg per mg (Merck Index)
0.199 calc kg COC discharged

SUMMARY CMASS ESTIMATES:

0.20 kg Dioxins/Furans

0.20 MASS (KG) DISCHARGED BY OVERLAND FLOW

Facility Base Scores, Culpability Factor, Cooperation Factor and Adjusted Base Scores - Protocol Calculation

Occidental Chemical Corp.

80 & 120 Lister Avenue

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07105

Facility BS	CUF	CUF_Category	CUF_NOTES	COF	COF_NOTES	Facility Adjusted BS
8.392E+1	100.0%	Intentional Action with Knowledge of Risk to HH/E	In the 1984 Aetna litigation, Judge Stanton found that Diamond, was concious that its discharge into the river were illigal, and that the company as a matter of corporate policy, intentionally and continuously discharged dioxin, DDT, and other hazardous substances from the Lister Plant into the Passaic River during the entire period of its plant operations. Specifically, the trial court found that "Diamond was conscious that its discharges into the (Passaic) (R)iver were illegal. It deliberately concealed them, and over a period of many years employed an alarm system to warn employees to stop the discharges when Passaic Valley inspectors were on the premises." Also, "Housekeeping at the (Lister Plant) ranged from inadequate to poor throughout the entire period of its operation by (DSCC). . . Spills of liquid and solid chemical products and wastes were literally continuous during every day of the plant's operations andome pipes were always leaking." Although "factory floors at the Newark plant were so badly corroded by acid spills that they had to be replaced nearly every summer...nothnig was done to mitigatethe polluting effect spills and leaks had upon the physical environment." And that OxyChem's "toleration and continuous spiling and leaking" ---was just "the way of life at the Newark Plant" and "its management accepted the spills and leaks as part of the normal routine of operating a chemical manufacturing plant."(PAS-00128426-29 & 49-50)	0.0%	-10% Original CPG member - Provision of funding and participation in PRP Group action to cooperate with governmental/regulatory entities to address environmental or public harm created by own activities; -10% Phase 1 removal actions completed in 2012 benefited all OU2 PRPs by removing substantially more COCs (except for dioxin) from OU2 than the facility contributed to OU2 20% Failed to participate in conduct of allocation as offered by EPA	1.678E+2

AP_ABS

1.678E+2

Facility Base Scores, Culpability Factor, Cooperation Factor and Adjusted Base Scores - Allocation Calculation

Occidental Chemical Corp.

80 & 120 Lister Avenue

Newark

NJ

07105

Facility BS	CUF	CUF_Category	CUF_NOTES	COF	COF_NOTES	Facility Adjusted BS
8.506E+1	100.0%	Intentional Action with Knowledge of Risk to HH/E	In the 1984 Aetna litigation, Judge Stanton found that Diamond, was concious that its discharge into the river were illigal, and that the company as a matter of corporate policy, intentionally and continuously discharged dioxin, DDT, and other hazardous substances from the Lister Plant into the Passaic River during the entire period of its plant operations. Specifically, the trial court found that "Diamond was conscious that its discharges into the (Passaic) (R)iver were illegal. It deliberately concealed them, and over a period of many years employed an alarm system to warn employees to stop the discharges when Passaic Valley inspectors were on the premises." Also, "Housekeeping at the (Lister Plant) ranged from inadequate to poor throughout the entire period of its operation by (DSCC). . . Spills of liquid and solid chemical products and wastes were literally continuous during every day of the plant's operations andome pipes were always leaking." Although "factory floors at the Newark plant were so badly corroded by acid spills that they had to be replaced nearly every summer...nothnig was done to mitigatethe polluting effect spills and leaks had upon the physical environment." And that OxyChem's "toleration and continuous spiling and leaking" ---was just "the way of life at the Newark Plant" and "its management accepted the spills and leaks as part of the normal routine of operating a chemical manufacturing plant."(PAS-00128426-29 & 49-50)	0.0%	-10% Original CPG member - Provision of funding and participation in PRP Group action to cooperate with governmental/regulatory entities to address environmental or public harm created by own activities; -10% Phase 1 removal actions completed in 2012 benefited all OU2 PRPs by removing substantially more COCs (except for dioxin) from OU2 than the facility contributed to OU2 20% Failed to participate in conduct of allocation as offered by EPA	1.701E+2

AP_ABS

1.701E+2

Allocation Facility Cmass Calculation

Okonite Company

220 Passaic Ave.

Passaic

NJ

07055

Constituent Of Concern (COC)	Overland, Fate & Transport C%	Dmass Overland, Fate & Transport	PrePVSC C%	Dmass PrePVSC	PVSC C%	Dmass PVSC	Direct Discharge C%	Dmass Direct Discharge	COC Total Pathway Cmass	COCA%	COC Historic CMass
Copper	100.00%	398.18	100.00%	-	2.32%	-	100.00%	5,422.8	5,821.01	1.018817E-2	59.31
Lead	100.00%	18,337.17	100.00%	-	2.32%	-	100.00%	8,827.3	27,164.42	1.018817E-2	276.76
Mercury	100.00%	27.24	100.00%	-	2.32%	-	100.00%	-	27.24	1.018817E-2	0.28
HPAHs	100.00%	4.26	100.00%	-	2.32%	-	100.00%	26,939.7	26,944.	1.018817E-2	274.51
LPAHs	100.00%	12.62	100.00%	-	2.32%	-	100.00%	17,959.8	17,972.44	1.018817E-2	183.11
PCBs	100.00%	-	100.00%	-	2.32%	-	100.00%	-	0	1.018817E-2	0
DDx	100.00%	-	100.00%	-	2.32%	-	100.00%	-	0	1.018817E-2	0
Dieldrin	100.00%	-	100.00%	-	2.32%	-	100.00%	-	0	1.018817E-2	0
Dioxins_Furans	100.00%	-	100.00%	-	2.32%	-	100.00%	-	0	1.018817E-2	0

Allocation Facility COC Base Scores - Protocol Calculation

Okonite Company

220 Passaic Ave.

Passaic

NJ

07055

Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	COC Historic CMass	COC Relative Contribution	COC Base Score
Copper	0.69	2,100,000.00	59.31	2.824E-5	1.949E-5
Lead	0.01	3,200,000.00	276.76	8.649E-5	8.649E-7
Mercury	0.95	42,000.00	0.28	6.608E-6	6.277E-6
HPAHs	0.05	240,000.00	274.51	1.144E-3	5.719E-5
LPAHs	0.01	170,000.00	183.11	1.077E-3	1.077E-5
PCBs	12.87	26,000.00	0	0	0
DDx	1.37	27,000.00	0	0	0
Dieldrin	0.13	390.00	0	0	0
Dioxins_Furans	83.92	38.00	0	0	0

Allocation Facility COC Base Scores - Alternative Calculation

Okonite Company

220 Passaic Ave.

Passaic

NJ

07055

Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	Total Cmass (TCmass)	Total OS COC ACmass	COC %	COC Historic CMass	Facility OS COC Cmass	COC Relative Responsibility	COC Base Score
Copper	0.69	2,100,000.00	276,960.25	2,097,178.28	2.102E-2	59.31	44,077.44	2.102E-2	1.450E-2
Lead	0.01	3,200,000.00	288,577.67	3,197,059.92	9.413E-2	276.76	300,945.99	9.413E-2	9.413E-4
Mercury	0.95	42,000.00	4,322.53	41,955.96	6.302E-3	0.28	264.4	6.302E-3	5.987E-3
HPAHs	0.05	240,000.00	4,346,388.50	195,718.24	6.199E-3	274.51	1,213.29	6.199E-3	3.100E-4
LPAHs	0.01	170,000.00	3,012,835.14	139,304.72	5.965E-3	183.11	830.99	5.965E-3	5.965E-5
PCBs	12.87	26,000.00	20,066.54	25,795.56	0	0	0	0	0
DDx	1.37	27,000.00	2,516.93	26,974.36	0	0	0	0	0
Dieldrin	0.13	390.00	1.27	389.99	0	0	0	0	0
Dioxins_Furans	83.92	38.00	3,729.82	0.00	0	0	0	0	0

Facility Bypass Information

Okonite Company

220 Passaic Ave.

Passaic

NJ

07055

Item	Bypass Name	Bypass Type	Time %	Flow %	Bypass Notes
1	Yantacaw	Bypass	2.32%	100.00%	

Discharge Calcs	Direct Discharge Information	COMMENTS/NOTES
24	# hours/day discharged	Direct Discharge was to Weasel Brook
7	# days/week discharged	Permitted PAP-000242145-48
52	# weeks/yr discharged	1988 Permit Application (PAP-002363525-28)
22,812,500	# gals/yr directly discharged	50000 gpd wastewater to Weasel Brook
4.08	ft; 30yr average annual precipitation per Rutgers information	12500 gpd cooling water to Weasel Brook
43,560	ft2 per acre	
acres		Connect to PVSC in 1920s for sanitary only
acres		
50%	Percent Precip to River	
1885	Yr Ops started	
1989	Yr Ops ceased	
104	calc #yrs facility operated	
Copper (Cu)		
104	#yrs facility discharged	1977 Priority Pollutant Monitoring Report (PAP-00264228,55)
0.75	calc mg/L COC discharged	Cu = 27 ug/l, 12 ug/l, 15 ug/l
3.785	L per gallon (Merck Index)	1989 Discharge Monitoring Report 0.03 mg/l-0.64mg/l Cu
0.000001	kg per mg (Merck Index)	1988-1989 sampling Cu=1.89 mg/l
6,713.98	calc kg COC discharged	
Lead (Pb)		
104	#yrs facility discharged	1977 Priority Pollutant Monitoring Report (PAP-00264228,55)
0.9830	calc mg/L COC discharged	Pb = 2200 ug/l, 49 ug/l, 700 ug/l
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
8,827.25	calc kg COC discharged	
Mercury (Hg)		
104	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
HPAHs		
104	#yrs facility discharged	Permitted Discharge to Weasel Creek (PAP-000242145-48)
	calc mg/L O&G	pAH 10 mg/l
10%	% O&G that is considered PAHs	
60%	% PAHs considered as HPAHs	
3.0	calc mg/L HPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
26,939.74	calc kg COC discharged	
LPAHs		
104	#yrs facility discharged	
	calc mg/L O&G	
10%	% O&G that is considered PAHs	
40%	% PAHs considered as LPAHs	
2	calc mg/L LPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
17,959.83	calc kg COC discharged	
PCBs		
104	#yrs facility discharged within PCBs Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
DDx		
104	#yrs facility discharged within DDx Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dieldrin		
104	#yrs facility discharged within Dieldrin Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxins/Furans		
104	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4-D		
104	#yrs facility discharged within 2,4-D Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,5-T		
104	#yrs facility discharged within 2,4,5-T Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,6-TCP		
104	#yrs facility discharged within 2,4,6-TCP Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Summary DMassCOC for Direct Discharge:		
5,422.83	kg Copper	
8,827.25	kg Lead	
-	kg Mercury	
26,939.74	kg HPAHs	
17,959.83	kg LPAHs	
-	kg PCBs	
-	kg DDx	
-	kg Dieldrin	
-	kg Dioxins/Furans	

Discharge Calcs

Direct Discharge Information
4.08 FEET/YEAR AVERAGE PRECIPITATION

ASSUMPTIONS, REFERENCES
Long term average annual precipitation includes floods and hurricane events occurring over time.

COMMENTS/NOTES
Data from Rutgers University.

12.9 ACRES - TOTAL SITE AREA (acres)
2.58 ACRES - AFFECTED AREA

FDR p 1
Looks to be around 80% buildings in 1930 and 1977 aerial photos here
<https://njdep.maps.arcgis.com/apps/webappviewer/index.html>

4,046.86 METERS²/ACRE

10,441 METERS² (AFFECTED AREA)

0.0001 METERS/YEAR (ERODED SOIL THICKNESS)

For this estimate, used a surface soil erosion rate of 0.1 mm/year, or 0.004 inches/year.

1 METERS³/YEAR (ERODED SOIL VOLUME)

VOLUME/YEAR DISCHARGED TO DITCHES

1885 Year site operations began
1993 Year Okonite sold the property

FDR p 1
Okonite operations ceased in 1989 (FDR p 1)

108 NUMBER YEARS DISCHARGE

113 METERS³ (TOTAL SOIL VOLUME DISCHARGED OVER TIME)

1,859 KG/M³ SOIL DENSITY

Fill reported as fine, medium, and coarse sands and silt and residue consisting of ash and cinders (PAS-00060192). Bulk density range 1346 KG/M³ to 2371 KG/M³, so use average. (http://structx.com/Soil_Properties_002.html)

209,568 KILOGRAMS (TOTAL SOIL DISCHARGED OVER TIME)

About 2/3 of the property appears to be on historic fill (FDR p 26)
Several AOCs within site are located on regional historic fill (FDR p 3)
Copper was used in cable manufacturing and stored inside in coil form (FDR p 18)

Copper (Cu)
108 YEARS DISCHARGED
1900 MG/KG (MAX CONCENTRATION)

Concentration from Area I1. Sample I1-2B was collected from 8-8.5 ft bgs (PAP-00244662)

0.000001 kg per mg (Merck Index)
398 KILOGRAMS DISCHARGED

Lead (Pb)
108 YEARS DISCHARGED
87500 MG/KG (MAX CONCENTRATION)

Lead was used in insulating compound manufacturing (FDR p 21)
Concentrations from Area K. Sample K-9 was collected from 1.5-2 ft bgs (PAP-00244672)

0.000001 kg per mg (Merck Index)
18,337 KILOGRAMS DISCHARGED

Mercury (Hg)
108 YEARS DISCHARGED
130 MG/KG (MAX CONCENTRATION)

Mercury was present only in sealed thermometers and switches (FDR p 24)
Sample K-23, concentration 430 mg/kg is maximum concentration. Was collected from 7-7.5 ft bgs (PAP-00244679). However, the 430 mg/kg result and its field duplicate do not meet NJDEP's April 2014 Site Remediation Program Data Quality Assessemnt and Data Usability Evaluation Technical Guidance. Therefore 130 mg/kg used. Sample from a lower depth is used here because of mercury's high density.

0.000001 kg per mg (Merck Index)
27 KILOGRAMS DISCHARGED

PAHs (listed in Benzo(a)pyrene Equivalent conversion table)

108 YEARS DISCHARGED
20.3 MG/KG (TOTAL PAH AVERAGE CONCENTRATION)
 0.000001 kg per mg (Merck Index)

4 KILOGRAMS DISCHARGED
 PAHs (others detected)

108 YEARS DISCHARGED
 60 MG/KG (TOTAL PAH MAX CONCENTRATION)
 0.000001 kg per mg (Merck Index)

13 KILOGRAMS DISCHARGED
 PCBs

108 YEARS DISCHARGED
 MG/KG AVG OF REPORTED CONCENTRATIONS
 0.000001 kg per mg (Merck Index)

0 KILOGRAMS DISCHARGED
 DDX

108 YEARS DISCHARGED within DDX Timeline
 MG/KG (MAX CONCENTRATION)
 3.785 L per gallon (Merck Index)

0.000001 kg per mg (Merck Index)
0 KILOGRAMS DISCHARGED
 Dieldrin

108 YEARS DISCHARGED within Dieldrin Timeline
 MG/KG (MAX CONCENTRATION)
 3.785 L per gallon (Merck Index)

0.000001 kg per mg (Merck Index)
0 KILOGRAMS DISCHARGED
 Dioxins/Furans

NONE FOUND IN AVAILABLE DOCUMENTATION
 108 YEARS DISCHARGED
 MG/KG (MAX CONCENTRATION)
 0.000001 kg per mg (Merck Index)

0 calc kg COC discharged

SUMMARY CMASS ESTIMATES:

398.18 kg Copper
 18,337.17 kg Lead
 27.24 kg Mercury
 4.26 kg PAHs (Benzo(a)pyrene Equivalent)
 12.62 kg PAHs (Other)
 0.00 kg PCBs
 0.00 kg DDX
 0.00 kg Dieldrin
 0.00 kg Dioxins/Furans

18779.46 MASS (KG) DISCHARGED FROM SURFACE SOIL

Total concentration of PAH compounds for Benzo(a)pyrene Equivalent
<https://floridadep.gov/waste/petroleum-restoration/documents/benzo-pyrene-equivalents-conversion-table-one-sample>.

Max concentrations from Area C, a paved area that was used to store empty drums (PAP-00244650). Sample C-2A was collected from 1.5-2 ft bgs (PAP-00244651)

Contaminant	Concentration (mg/kg)	Toxic Equivalency Factor	Benzo(a)pyrene Equivalents
Benzo(a)pyrene	16.000	1.0	16.0000
Benzo(a)anthracene	23.000	0.1	2.3000
Benzo(b)fluoranthene	1.500	0.1	0.1500
Benzo(k)fluoranthene	15.000	0.01	0.1500
Chrysene	22.000	0.001	0.0220
Dibenz(a,h)anthracene	0.000	1.0	0.0000
Indeno(1,2,3-cd)pyrene	17.000	0.1	1.7000

DE Residential = 0.1 mg/kg; DE Industrial = 0.7 mg/kg

Total Benzo(a)pyrene Equivalents = **20.3**

Sample C-2A was collected from 1.5-2 ft bgs (PAP-00244651)	
Acenaphthylene	0.2
Acenaphthene	5.8
Anthracene	9.4
Naphthalene	1.8
Phenanthrene	43
SUM	60.2

Facility Base Scores, Culpability Factor, Cooperation Factor and Adjusted Base Scores - Protocol Calculation

Okonite Company

220 Passaic Ave.

Passaic

NJ

07055

Facility BS	CUF	CUF_Category	CUF_NOTES	COF	COF_NOTES	Facility Adjusted BS
9.459E-5	5.0%	Occasional Noncompliance	1973 PVSC Annual Report identified a sample of the boiler blowdown outlet that was found to be polluting, and the company was directed to halt this pollution (PAS-00034781; PAS-00102011). On August 27, 1985 NJDEP issued Okonite an Administrative Order concerning a violation of the Solid Waste Management Act, N.J.S.A. 13:1E-1 et seq and regulations promulgated thereunder, specifically N.J.A.C 7:26-7.6(f) 2 for failure to file an annual report (PAS-00102064-5). Area K had an unpaved area of oil-stained soils with water softener resin beads and tar-like material. Also, at an unpaved area beneath the Banbury mixer where oil-stained soils were observed. At the loading oil-stained soils were also found (PAP-00245798-802).	-10.0%	-10% SPG member - Provision of funding and participation in PRP Group(s) actions to cooperate with governmental/regulatory to address environmental or public harm created by own activities	8.986E-5
						AP_ABS 8.986E-5

Facility Base Scores, Culpability Factor, Cooperation Factor and Adjusted Base Scores - Allocation Calculation

Okonite Company

220 Passaic Ave.

Passaic

NJ

07055

Facility BS	CUF	CUF_Category	CUF_NOTES	COF	COF_NOTES	Facility Adjusted BS
2.180E-2	5.0%	Occasional Noncompliance	1973 PVSC Annual Report identified a sample of the boiler blowdown outlet that was found to be polluting, and the company was directed to halt this pollution (PAS-00034781; PAS-00102011). On August 27, 1985 NJDEP issued Okonite an Administrative Order concerning a violation of the Solid Waste Management Act, N.J.S.A. 13:1E-1 et seq and regulations promulgated thereunder, specifically N.J.A.C 7:26-7.6(f) 2 for failure to file an annual report (PAS-00102064-5). Area K had an unpaved area of oil-stained soils with water softener resin beads and tar-like material. Also, at an unpaved area beneath the Banbury mixer where oil-stained soils were observed. At the loading oil-stained soils were also found (PAP-00245798-802).	-10.0%	-10% SPG member - Provision of funding and participation in PRP Group(s) actions to cooperate with governmental/regulatory to address environmental or public harm created by own activities	2.071E-2

AP_ABS

2.071E-2

Allocation Facility Cmass Calculation

Otis Elevator Co.

1000 1st Street

Harrison

NJ

07029

Constituent Of Concern (COC)	Overland, Fate & Transport C%	Dmass Overland, Fate & Transport	PrePVSC C%	Dmass PrePVSC	PVSC C%	Dmass PVSC	Direct Discharge C%	Dmass Direct Discharge	COC Total Pathway Cmass	COC A%	COC Historic CMass
Copper	100.00%	-	100.00%	141.76	0.24%	567.03	100.00%	116.7	259.75	1.018817E-2	2.65
Lead	100.00%	-	100.00%	125.15	0.24%	500.60	100.00%	103.0	229.32	1.018817E-2	2.34
Mercury	100.00%	-	100.00%	6.76	0.24%	27.05	100.00%	5.6	12.39	1.018817E-2	0.13
HPAHs	100.00%	-	100.00%	590.75	0.24%	2,363.02	100.00%	486.2	1,082.47	1.018817E-2	11.03
LPAHs	100.00%	-	100.00%	395.26	0.24%	1,581.04	100.00%	325.3	724.26	1.018817E-2	7.38
PCBs	100.00%	-	100.00%	-	0.24%	-	100.00%	-	0	1.018817E-2	0
DDx	100.00%	-	100.00%	-	0.24%	-	100.00%	-	0	1.018817E-2	0
Dieldrin	100.00%	-	100.00%	-	0.24%	-	100.00%	-	0	1.018817E-2	0
Dioxins_Furans	100.00%	-	100.00%	-	0.24%	-	100.00%	-	0	1.018817E-2	0

Allocation Facility COC Base Scores - Protocol Calculation

Otis Elevator Co.

1000 1st Street

Harrison

NJ

07029

Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	COC Historic CMass	COC Relative Contribution	COC Base Score
Copper	0.69	2,100,000.00	2.65	1.260E-6	8.695E-7
Lead	0.01	3,200,000.00	2.34	7.301E-7	7.301E-9
Mercury	0.95	42,000.00	0.13	3.005E-6	2.855E-6
HPAHs	0.05	240,000.00	11.03	4.595E-5	2.298E-6
LPAHs	0.01	170,000.00	7.38	4.341E-5	4.341E-7
PCBs	12.87	26,000.00	0	0	0
DDx	1.37	27,000.00	0	0	0
Dieldrin	0.13	390.00	0	0	0
Dioxins_Furans	83.92	38.00	0	0	0

Allocation Facility COC Base Scores - Alternative Calculation

Otis Elevator Co.

1000 1st Street

Harrison

NJ

07029

Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	Total Cmass (TCmass)	Total OS COC ACmass	COC %	COC Historic CMass	Facility OS COC Cmass	COC Relative Responsibility	COC Base Score
Copper	0.69	2,100,000.00	276,960.25	2,097,178.28	9.379E-4	2.65	1,966.86	9.379E-4	6.471E-4
Lead	0.01	3,200,000.00	288,577.67	3,197,059.92	7.947E-4	2.34	2,540.56	7.947E-4	7.947E-6
Mercury	0.95	42,000.00	4,322.53	41,955.96	2.866E-3	0.13	120.26	2.866E-3	2.723E-3
HPAHs	0.05	240,000.00	4,346,388.50	195,718.24	2.491E-4	11.03	48.74	2.491E-4	1.245E-5
LPAHs	0.01	170,000.00	3,012,835.14	139,304.72	2.404E-4	7.38	33.49	2.404E-4	2.404E-6
PCBs	12.87	26,000.00	20,066.54	25,795.56	0	0	0	0	0
DDx	1.37	27,000.00	2,516.93	26,974.36	0	0	0	0	0
Dieldrin	0.13	390.00	1.27	389.99	0	0	0	0	0
Dioxins_Furans	83.92	38.00	3,729.82	0.00	0	0	0	0	0

Facility Bypass Information

Otis Elevator Co.

1000 1st Street

Harrison

NJ

07029

Item	Bypass Name	Bypass Type	Time %	Flow %	Bypass Notes
1	Middlesex Street	CSO	0.51%	46.17%	

Discharge Calcs	POTW Discharge Information	COMMENTS/NOTES
	gal discharged per day/week/month	Discharge to the PVSC starting in 1924
24	# hours/per day discharged	
7	#days/week discharged	1971 - 46440000 gallons
52	#weeks/yr discharged	1974 - 27412720 gallons
27,982,978	calc gal/yr discharge	1976 - 26294900 gallons
		1978 - 11784920 gallons
1924	Yr Ops started	
1980	Yr Ops ceased	
56	calc #yrs facility operated	
Copper (Cu)		
56	#yrs facility discharged	Sampling Data
0.12	calc mg/L COC discharged	1972 = 0.04 mg/l
3.785	L per gallon (Merck Index)	1978 = .199 mg/l
0.000001	kg per mg (Merck Index)	
708.79	calc kg COC discharged	
Lead (Pb)		
56	#yrs facility discharged	Sampling Data
0.11	calc mg/L COC discharged	1972 = .07 mg/l
3.785	L per gallon (Merck Index)	1978 = .141 mg/l
0.000001	kg per mg (Merck Index)	
625.75	calc kg COC discharged	
Mercury (Hg)		
56	#yrs facility discharged	Sampling Data
0.0057	calc mg/L COC discharged	1978 = .0057 mg/l
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
33.81	calc kg COC discharged	
HPAhs		
56	#yrs facility discharged	Sampling Data
8.30	calc mg/L Q&G	1979 8.33 mg/l emulsified oil
10%	% Q&G that is considered PAHs	
60%	% PAHs considered as HPAhs	
0.50	calc mg/L HPAhs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
2,953.77	calc kg COC discharged	
LPAHs		
56	#yrs facility discharged	Sampling Data
8.33	calc mg/L Q&G	1979 8.33 mg/l emulsified oil
10%	% Q&G that is considered PAHs	
40%	% PAHs considered as LPAHs	
0	calc mg/L LPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
1,976.30	calc kg COC discharged	
PCBs		
49	#yrs facility discharged within PCBs Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
DDx		
33	#yrs facility discharged within DDx Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dieldrin		
31	#yrs facility discharged within Dieldrin Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxins/Furans		
56	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4-D		
35	#yrs facility discharged within 2,4-D Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,5-T		
36	#yrs facility discharged within 2,4,5-T Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,6-TCP		
26	#yrs facility discharged within 2,4,6-TCP Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Summary DMassCOC for POTW:		
708.79	kg Copper	
625.75	kg Lead	
33.81	kg Mercury	
2,953.77	kg HPAhs	
1,976.30	kg LPAHs	
-	kg PCBs	
-	kg DDx	
-	kg Dieldrin	
-	kg Dioxins/Furans	

Discharge Calcs	Direct Discharge Information	COMMENTS/NOTES
18,422,658	# hours/day discharged	1910-1924 all discharges went to Passaic River
	# days/week discharged	1924-1980 connected to PVSC so noncontact cooling water and storm water to River
	# weeks/yr discharged	
18,422,658	# gals/yr directly discharged	1971 - 17610730 gallons
4.08		1974 - 26174000 gallons
	ft; 30yr average annual precipitation per Rutgers information	1976 - 10805900 gallons
43,560	acres	1978 - 19100000 gallons
	ft2 per acre	
	acres	
50%	Percent Precip to River	
1910	Yr Ops started	
1924	Yr Ops ceased	
14	calc #yrs facility operated	
Copper (Cu)		
14	#yrs facility discharged	Sampling Data
0.12	calc mg/L COC discharged	1972 = 0.04 mg/l
3.785	L per gallon (Merck Index)	1978 = .199 mg/l
0.000001	kg per mg (Merck Index)	
116.66	calc kg COC discharged	
Lead (Pb)		
14	#yrs facility discharged	Sampling Data
0.1055	calc mg/L COC discharged	1972 = .07 mg/l
3.785	L per gallon (Merck Index)	1978 = .141 mg/l
0.000001	kg per mg (Merck Index)	
102.99	calc kg COC discharged	
Mercury (Hg)		
14	#yrs facility discharged	Sampling Data
0.01	calc mg/L COC discharged	1978 = .0057 mg/l
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
5.56	calc kg COC discharged	
HPAhs		
14	#yrs facility discharged	Sampling Data
8.30	calc mg/L O&G	1979 8.33 mg/l emulsified oil
10%	% O&G that is considered PAHs	1972 14.8 mg/l emulsified oil
60%	% PAHs considered as PAHs	
0.50	calc mg/L HPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
486.16	calc kg COC discharged	
LPAHs		
14	#yrs facility discharged	Sampling Data
8.33	calc mg/L O&G	1979 8.33 mg/l emulsified oil
10%	% O&G that is considered PAHs	1972 14.8 mg/l emulsified oil
40%	% PAHs considered as LPAHs	
0.33	calc mg/L LPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
325.28	calc kg COC discharged	
PCBs		
-4	#yrs facility discharged within PCBs Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
DDx		
-15	#yrs facility discharged within DDx Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dieldrin		
-25	#yrs facility discharged within Dieldrin Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxins/Furans		
14	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4-D		
-21	#yrs facility discharged within 2,4-D Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,5-T		
-20	#yrs facility discharged within 2,4,5-T Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,6-TCP		
-25	#yrs facility discharged within 2,4,6-TCP Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Summary DMassCOC for Direct Discharge:		
116.66	kg Copper	
102.99	kg Lead	
5.56	kg Mercury	
486.16	kg HPAHs	
325.28	kg LPAHs	
-	kg PCBs	
-	kg DDx	
-	kg Dieldrin	
-	kg Dioxins/Furans	

Facility Base Scores, Culpability Factor, Cooperation Factor and Adjusted Base Scores - Protocol Calculation

Otis Elevator Co.

1000 1st Street	Harrison	NJ	07029
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Facility BS	CUF	CUF_Category	CUF_NOTES	COF	COF_NOTES	Facility Adjusted BS
6.464E-6	10.0%	Periodic Noncompliance	Former employee stated that a fellow employee had occasionally disposed of water-based coolant collected from metal cutting operations into an exterior drain or other such structure, believed to drain to the primary wastewater discharge line that ran from the facility to the Passaic Valley Sewerage Commission (PVSC) sewer system. A review of the annual reports from 1969 through 1976 and the 1977 Draft Report mention Otis in 1969, 1971, and 1972 for two minor violations (PAS-00076592-93). In the 1972 PVSC Annual Report, Otis received a violation for samples taken on December 14, 1971 from the five outlets that were flowing (7, 8, 10, 15, and 16). The discharge from Outlet 7 had been polluting PAP-00319432-323; PAS-00006171-72; PAS-00076763-64). According to a Cease and Desist Order from NJDOH to Otis dated October 3, 1969, NJDOH found that Otis had been discharging harmful, deleterious and polluting matter from a sewer or drain into the Passaic River (PAS-00076756-58).	-20.0%	-20% CPG/SPG member - Continuous provision of funding and participation in PRP Group(s) actions to cooperate with governmental/regulatory entities to address environmental or public harm created by own activities	5.817E-6

AP_ABS

5.817E-6

Facility Base Scores, Culpability Factor, Cooperation Factor and Adjusted Base Scores - Allocation Calculation

Otis Elevator Co.

1000 1st Street	Harrison	NJ	07029
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Facility BS	CUF	CUF_Category	CUF_NOTES	COF	COF_NOTES	Facility Adjusted BS
3.393E-3	10.0%	Periodic Noncompliance	Former employee stated that a fellow employee had occasionally disposed of water-based coolant collected from metal cutting operations into an exterior drain or other such structure, believed to drain to the primary wastewater discharge line that ran from the facility to the Passaic Valley Sewerage Commission (PVSC) sewer system. A review of the annual reports from 1969 through 1976 and the 1977 Draft Report mention Otis in 1969, 1971, and 1972 for two minor violations (PAS-00076592-93). In the 1972 PVSC Annual Report, Otis received a violation for samples taken on December 14, 1971 from the five outlets that were flowing (7, 8, 10, 15, and 16). The discharge from Outlet 7 had been polluting PAP-00319432-323; PAS-00006171-72; PAS-00076763-64). According to a Cease and Desist Order from NJDOH to Otis dated October 3, 1969, NJDOH found that Otis had been discharging harmful, deleterious and polluting matter from a sewer or drain into the Passaic River (PAS-00076756-58).	-20.0%	-20% CPG/SPG member - Continuous provision of funding and participation in PRP Group(s) actions to cooperate with governmental/regulatory entities to address environmental or public harm created by own activities	3.054E-3

AP_ABS

3.054E-3

Allocation Facility Cmass Calculation

Pabst Brewing Company

400 Grove Street

Newark

NJ

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Constituent Of Concern (COC)	Overland, Fate & Transport C%	Dmass Overland, Fate & Transport	PrePVSC C%	Dmass PrePVSC	PVSC C%	Dmass PVSC	Direct Discharge C%	Dmass Direct Discharge	COC Total Pathway Cmass	COCA%	COC Historic CMass
Copper	100.00%	-	100.00%	-	0.00%	3,662.52	100.00%	-	0	1.018817E-2	0
Lead	100.00%	-	100.00%	-	0.00%	4,657.77	100.00%	-	0	1.018817E-2	0
Mercury	100.00%	-	100.00%	-	0.00%	149.29	100.00%	-	0	1.018817E-2	0
HPAHs	100.00%	-	100.00%	-	0.00%	189,834.09	100.00%	-	0	1.018817E-2	0
LPAHs	100.00%	-	100.00%	-	0.00%	126,556.06	100.00%	-	0	1.018817E-2	0
PCBs	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
DDx	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
Dieldrin	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
Dioxins_Furans	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0

Allocation Facility COC Base Scores - Protocol Calculation

Pabst Brewing Company

400 Grove Street

Newark

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Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	COC Historic CMass	COC Relative Contribution	COC Base Score
Copper	0.69	2,100,000.00	0	0	0
Lead	0.01	3,200,000.00	0	0	0
Mercury	0.95	42,000.00	0	0	0
HPAHs	0.05	240,000.00	0	0	0
LPAHs	0.01	170,000.00	0	0	0
PCBs	12.87	26,000.00	0	0	0
DDx	1.37	27,000.00	0	0	0
Dieldrin	0.13	390.00	0	0	0
Dioxins_Furans	83.92	38.00	0	0	0

Allocation Facility COC Base Scores - Alternative Calculation

Pabst Brewing Company

400 Grove Street

Newark

NJ

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Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	Total Cmass (TCmass)	Total OS COC ACmass	COC %	COC Historic CMass	Facility OS COC Cmass	COC Relative Responsibility	COC Base Score
Copper	0.69	2,100,000.00	276,960.25	2,097,178.28	0	0	0	0	0
Lead	0.01	3,200,000.00	288,577.67	3,197,059.92	0	0	0	0	0
Mercury	0.95	42,000.00	4,322.53	41,955.96	0	0	0	0	0
HPAHs	0.05	240,000.00	4,346,388.50	195,718.24	0	0	0	0	0
LPAHs	0.01	170,000.00	3,012,835.14	139,304.72	0	0	0	0	0
PCBs	12.87	26,000.00	20,066.54	25,795.56	0	0	0	0	0
DDx	1.37	27,000.00	2,516.93	26,974.36	0	0	0	0	0
Dieldrin	0.13	390.00	1.27	389.99	0	0	0	0	0
Dioxins_Furans	83.92	38.00	3,729.82	0.00	0	0	0	0	0

Facility Bypass Information

Pabst Brewing Company

400 Grove Street

Newark

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Item	Bypass Name	Bypass Type	Time %	Flow %	Bypass Notes
1	Beyond PVSC boundaries		0.00%	0.00%	"The western portion of the city (Newark) is served by the Essex and Union County Treatment Plants in Elizabeth, while the remainder is served by the Passaic Valley Sewerage Commission treatment plant in southeastern Newark" (PAP-00701823).

Discharge Calcs	POTW Discharge Information	COMMENTS/NOTES
24	gal discharged per day/week/month	PVSC Discharge under permit No. NJ0028088 (PAS-00031712)
6-7	# hours/ per day discharged	Discharge Volumes to Sanitary Sewer PVSC
	#days/week discharged	1974 = 440,507,570 gallons (PAS-00031809)
	52 #weeks/yr discharged	1978 = 401,467,017 gallons (PAS-00031828)
500,849,512	calc gal/yr discharge	1982 = 1.44MGD (PAS-00031714); 1983 = 1.3442 MGD (PAP-00406403); 1984 = 1.426 MGD (PAP-00016793); 1985 = 1.4594 MGD (PAP-00406602); 1972 = 594,568,000 gallons (PAS-0031804)
1964	Yr Ops started	
1985	Yr Ops ceased	
21	calc #yrs facility operated	May 29, 2020 Expert Report by Roux Associates, Inc.
Copper (Cu)		
21	#yrs facility discharged	1978 = .179 mg/l (PAS-00031647/PAS-00031832)
0.092	calc mg/L COC discharged	1984 = .005 mg/l (PAP-00406896)
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
3,662.52	calc kg COC discharged	
Lead (Pb)		1978
21	#yrs facility discharged	bb = .117 mg/l (PAS-00031647/PAS00031832)
0.117	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
4,657.77	calc kg COC discharged	
Mercury (Hg)		1978
21	#yrs facility discharged	Hg = .0063 mg/l and .0012 mg/l (PAS-00031647/PAS-00031832)
0.0038	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
149.29	calc kg COC discharged	
HPAHS		1978 Oil and Grease = 4.6 mg/l (PAS-00031718)
79.48	calc mg/L Q&G	1972 Waste Effluent Survey: 33.2, 230, 340 mg/l and 3.6, 2.4, 0.4 mg/l
10%	% Q&G that is considered PAHs	1975 21.6 mg/l
60%	% PAHs considered as HPAHs	
4.77	calc mg/L HPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
189,834.10	calc kg COC discharged	
LPAHs		1978 Oil and Grease = 4.6 mg/l (PAS-00031718)
79.48	calc mg/L Q&G	1972 Waste Effluent Survey: 33.2, 230, 340 mg/l and 3.6, 2.4, 0.4 mg/l
10%	% Q&G that is considered PAHs	1975 21.6 mg/l
40%	% PAHs considered as LPAHs	
3	calc mg/L LPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
126,556.06	calc kg COC discharged	
PCBs		1978 Oil and Grease = 4.6 mg/l (PAS-00031718)
14	#yrs facility discharged within PCBs Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
DDx		9 #yrs facility discharged within DDx Timeline
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dieldrin		22 #yrs facility discharged within Dieldrin Timeline
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxins/Furans		21 #yrs facility discharged
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4-D		22 #yrs facility discharged within 2,4-D Timeline
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,5-T		22 #yrs facility discharged within 2,4,5-T Timeline
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,6-TCP		12 #yrs facility discharged within 2,4,6-TCP Timeline
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Summary DMassCOC for POTW:		
3,662.52	kg Copper	
4,657.77	kg Lead	
149.29	kg Mercury	
189,834.10	kg HPAHs	
126,556.06	kg LPAHs	
-	kg PCBs	
-	kg DDx	
-	kg Dieldrin	
-	kg Dioxins/Furans	

Discharge Calcs	Direct Discharge Information	COMMENTS/NOTES
	# hours/day discharged	Direct Discharge of Storm water to Maybaum Creek
	# days/week discharged	Storm water Flow Volumes
	# weeks/yr discharged	1971 96790000 gallons (PAS-00031804)
-	# gals/yr directly discharged	1974 49484560 gallons (PAS-00031809)
4.08	ft; 30yr average annual precipitation per Rutgers information	1978 106205100 gallons (PAS-00031828)
43,560	acres	
	ft2 per acre	
1945	Yr Ops started	
1985	Yr Ops ceased	Determined to have no direct connection to the Passaic River, therefore no direct discharge to Passaic River.
40	calc #yrs facility operated	
Copper (Cu)		
40	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Lead (Pb)		
40	#yrs facility discharged	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Mercury (Hg)		
40	#yrs facility discharged	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
HPAHS		
40	#yrs facility discharged	1975
21.00	calc mg/L O&G	21 mg/l Emul Oil to Storm Sewer
10%	% O&G that is considered PAHs	
60%	% PAHs considered as HPAHs	
1.26	calc mg/L HPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
LPAHs		
40	#yrs facility discharged	1975
21.00	calc mg/L O&G	21 mg/l Emul Oil to Storm Sewer
10%	% O&G that is considered PAHs	
40%	% PAHs considered as LPAHs	
0.84	calc mg/L LPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
PCBs		
33	#yrs facility discharged within PCBs Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
DDx		
28	#yrs facility discharged within DDx Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dieldrin		
36	#yrs facility discharged within Dieldrin Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxins/Furans		
40	#yrs facility discharged	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4-D		
40	#yrs facility discharged within 2,4-D Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,5-T		
41	#yrs facility discharged within 2,4,5-T Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,6-TCP		
26	#yrs facility discharged within 2,4,6-TCP Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Summary DMassCOC for Direct Discharge:		
-	kg Copper	
-	kg Lead	
-	kg Mercury	
-	kg HPAHs	
-	kg LPAHs	
-	kg PCBs	
-	kg DDx	
-	kg Dieldrin	
-	kg Dioxins/Furans	

Facility Base Scores, Culpability Factor, Cooperation Factor and Adjusted Base Scores - Protocol Calculation

Pabst Brewing Company

400 Grove Street

Newark

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Facility BS	CUF	CUF_Category	CUF_NOTES	COF	COF_NOTES	Facility Adjusted BS
0	0.0%	Historically Compliant or No Evidence	Pabst and New West Developers, Inc. received Notices of Violation (NOV) on May 5, 2005 (prior to Pabst ownership) and April 28, 2011, for failure of New West to conduct a remedial investigation and conduct remediation to abate contamination; area subsequently remedied by Pabst. (PAP-00286348-49; PAP-00286135).	-10.0%	-10% SPG member - Provision of funding and participation in PRP Group(s) actions to cooperate with governmental/regulatory entities to address environmental or public harm created by own activities	0
AP_ABS						0

Facility Base Scores, Culpability Factor, Cooperation Factor and Adjusted Base Scores - Allocation Calculation

Pabst Brewing Company

400 Grove Street

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07111

Facility BS	CUF	CUF_Category	CUF_NOTES	COF	COF_NOTES	Facility Adjusted BS
0	0.0%	Historically Compliant or No Evidence	Pabst and New West Developers, Inc. received Notices of Violation (NOV) on May 5, 2005 (prior to Pabst ownership) and April 28, 2011, for failure of New West to conduct a remedial investigation and conduct remediation to abate contamination; area subsequently remedied by Pabst. (PAP-00286348-49; PAP-00286135).	-10.0%	-10% SPG member - Provision of funding and participation in PRP Group(s) actions to cooperate with governmental/regulatory entities to address environmental or public harm created by own activities	0
AP_ABS						0

Allocation Facility Cmass Calculation

Passaic Pioneer Properties Co.

35 8th Street

Passaic

NJ

07055

Constituent Of Concern (COC)	Overland, Fate & Transport C%	Dmass Overland, Fate & Transport	PrePVSC C%	Dmass PrePVSC	PVSC C%	Dmass PVSC	Direct Discharge C%	Dmass Direct Discharge	COC Total Pathway Cmass	COCA%	COC Historic CMass
Copper	100.00%	-	100.00%	-	2.32%	3.32	100.00%	20.6	20.68	1.018817E-2	0.21
Lead	100.00%	-	100.00%	-	2.32%	1.19	100.00%	7.4	7.44	1.018817E-2	0.08
Mercury	100.00%	-	100.00%	-	2.32%	0.11	100.00%	0.7	0.71	1.018817E-2	0.01
HPAHs	100.00%	-	100.00%	-	2.32%	-	100.00%	-	0	1.018817E-2	0
LPAHs	100.00%	-	100.00%	-	2.32%	-	100.00%	-	0	1.018817E-2	0
PCBs	100.00%	-	100.00%	-	2.32%	-	100.00%	-	0	1.018817E-2	0
DDx	100.00%	-	100.00%	-	2.32%	-	100.00%	-	0	1.018817E-2	0
Dieldrin	100.00%	-	100.00%	-	2.32%	-	100.00%	-	0	1.018817E-2	0
Dioxins_Furans	100.00%	-	100.00%	-	2.32%	-	100.00%	-	0	1.018817E-2	0

Allocation Facility COC Base Scores - Protocol Calculation

Passaic Pioneer Properties Co.

35 8th Street

Passaic

NJ

07055

Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	COC Historic CMass	COC Relative Contribution	COC Base Score
Copper	0.69	2,100,000.00	0.21	1.003E-7	6.923E-8
Lead	0.01	3,200,000.00	0.08	2.368E-8	2.368E-10
Mercury	0.95	42,000.00	0.01	1.718E-7	1.632E-7
HPAHs	0.05	240,000.00	0	0	0
LPAHs	0.01	170,000.00	0	0	0
PCBs	12.87	26,000.00	0	0	0
DDx	1.37	27,000.00	0	0	0
Dieldrin	0.13	390.00	0	0	0
Dioxins_Furans	83.92	38.00	0	0	0

Allocation Facility COC Base Scores - Alternative Calculation

Passaic Pioneer Properties Co.

35 8th Street

Passaic

NJ

07055

Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	Total Cmass (TCmass)	Total OS COC ACmass	COC %	COC Historic CMass	Facility OS COC Cmass	COC Relative Responsibility	COC Base Score
Copper	0.69	2,100,000.00	276,960.25	2,097,178.28	7.467E-5	0.21	156.6	7.467E-5	5.152E-5
Lead	0.01	3,200,000.00	288,577.67	3,197,059.92	2.577E-5	0.08	82.39	2.577E-5	2.577E-7
Mercury	0.95	42,000.00	4,322.53	41,955.96	1.638E-4	0.01	6.87	1.638E-4	1.557E-4
HPAHs	0.05	240,000.00	4,346,388.50	195,718.24	0	0	0	0	0
LPAHs	0.01	170,000.00	3,012,835.14	139,304.72	0	0	0	0	0
PCBs	12.87	26,000.00	20,066.54	25,795.56	0	0	0	0	0
DDx	1.37	27,000.00	2,516.93	26,974.36	0	0	0	0	0
Dieldrin	0.13	390.00	1.27	389.99	0	0	0	0	0
Dioxins_Furans	83.92	38.00	3,729.82	0.00	0	0	0	0	0

Facility Bypass Information

Passaic Pioneer Properties Co.

35 8th Street

Passaic

NJ

07055

Item	Bypass Name	Bypass Type	Time %	Flow %	Bypass Notes
1	Yantacaw	Bypass	2.32%	100.00%	

Discharge Calcs	POTW Discharge Information	COMMENTS/NOTES
	gal discharged per day/week/month	No information on flows or COCs.
	# hours/per day discharged	PAP-00193888 indicated no process waste directly to Passaic River
	#days/week discharged	2006 PAR (PAP-00193883) - All sanitary and industrial waste to PVSC since 1900
	#weeks/yr discharged	Assume 1MGY
1,000,000	calc gal/yr discharge	
1936	Yr Ops started	
1966	Yr Ops ceased	
30	calc #yrs facility operated	
Copper (Cu)		
30	#yrs facility discharged	Metals data assumed based on 1982 USEPA Document:
0.0292	calc mg/L COC discharged	"Final Development Document for Effluent Limitations Guidelines and Standards for Textile Mills"
3.785	L per gallon (Merck Index)	Used for estimates
0.000001	kg per mg (Merck Index)	
3.32	calc kg COC discharged	
Lead (Pb)		
30	#yrs facility discharged	Metals data assumed based on 1982 USEPA Document:
0.0105	calc mg/L COC discharged	"Final Development Document for Effluent Limitations Guidelines and Standards for Textile Mills"
3.785	L per gallon (Merck Index)	Used for estimates
0.000001	kg per mg (Merck Index)	
1.19	calc kg COC discharged	
Mercury (Hg)		
30	#yrs facility discharged	Metals data assumed based on 1982 USEPA Document:
0.001	calc mg/L COC discharged	"Final Development Document for Effluent Limitations Guidelines and Standards for Textile Mills"
3.785	L per gallon (Merck Index)	Used for estimates
0.000001	kg per mg (Merck Index)	
0.114	calc kg COC discharged	
HPAHs		
30	#yrs facility discharged	
	calc mg/L O&G	
10%	% O&G that is considered PAHs	
50%	% COC in O&G considered as PAHs	
-	calc mg/L HPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
LPAHs		
30	#yrs facility discharged	
	calc mg/L O&G	
10%	% O&G that is considered PAHs	
50%	% COC in O&G considered as PAHs	
-	calc mg/L LPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
PCBs		
31	#yrs facility discharged within PCBs Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
DDx		
27	#yrs facility discharged within DDx Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dieldrin		
17	#yrs facility discharged within Dieldrin Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxins/Furans		
30	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4-D		
21	#yrs facility discharged within 2,4-D Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,5-T		
22	#yrs facility discharged within 2,4,5-T Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,6-TCP		
17	#yrs facility discharged within 2,4,6-TCP Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Summary DMassCOC for POTW:		
3.32	kg Copper	
1.19	kg Lead	
0.11	kg Mercury	
-	kg HPAHs	
-	kg LPAHs	
-	kg PCBs	
-	kg DDx	
-	kg Dieldrin	
-	kg Dioxins/Furans	

Discharge Calcs	Direct Discharge Information	COMMENTS/NOTES
	# hours/day discharged	Documentation states stormwater discharged to Passaic River
	# days/week discharged	Thread Manufacturing/Dyeing process
	# weeks/yr discharged	Stormwater flow based on acreage and rainfall data
6,214,114	# gals/yr directly discharged	
4.08	ft; 30yr average annual precipitation per Rutgers information	
	acres	
43,560	ft ² per acre	
9.34	acres	
50%	Percent Precip to River	
1936	Yr Ops started	
1966	Yr Ops ceased	
30	calc #yrs facility operated	
Copper (Cu)		
30	#yrs facility discharged	Metals data assumed based on 1982 USEPA Document:
0.0292	calc mg/L COC discharged	"Final Development Document for Effluent Limitations Guidelines and Standards for Textile Mills"
3.785	L per gallon (Merck Index)	Used for estimates
0.000001	kg per mg (Merck Index)	
20.60	calc kg COC discharged	
Lead (Pb)		Metals data assumed based on 1982 USEPA Document:
0.0105	calc mg/L COC discharged	"Final Development Document for Effluent Limitations Guidelines and Standards for Textile Mills"
3.785	L per gallon (Merck Index)	Used for estimates
0.000001	kg per mg (Merck Index)	
7.41	calc kg COC discharged	
Mercury (Hg)		Metals data assumed based on 1982 USEPA Document:
30	#yrs facility discharged	"Final Development Document for Effluent Limitations Guidelines and Standards for Textile Mills"
0.001	calc mg/L COC discharged	Used for estimates
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
0.71	calc kg COC discharged	
HPAHs		
30	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
LPAHs		
30	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
PCBs		
31	#yrs facility discharged within PCBs Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
DDx		
27	#yrs facility discharged within DDx Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dieldrin		
17	#yrs facility discharged within Dieldrin Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxins/Furans		
30	#yrs facility discharged	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4-D		
21	#yrs facility discharged within 2,4-D Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,5-T		
22	#yrs facility discharged within 2,4,5-T Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,6-TC		
17	#yrs facility discharged within 2,4,6-TC Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Summary DMassCOC for Direct Discharge:		
20.6039	kg Copper	
7.4089	kg Lead	
0.7056	kg Mercury	
-	kg HPAHs	
-	kg LPAHs	
-	kg PCBs	
-	kg DDx	
-	kg Dieldrin	
-	kg Dioxins/Furans	

Facility Base Scores, Culpability Factor, Cooperation Factor and Adjusted Base Scores - Protocol Calculation

Passaic Pioneer Properties Co.

35 8th Street		Passaic	NJ	07055				
Facility BS	CUF	CUF_Category	CUF_NOTES		COF	COF_NOTES		Facility Adjusted BS
2.327E-7	5.0%	Occasional Noncompliance	Documented instances of dye wastes (in 1947, 1948, 1951, 1956, 1971, 1978) and cooling water (1969) being released to the Passaic River by tenants resulted in violations (PAS-00115125; PAS-00115406; PAS-00035373; PAS-00115415-426).		0.0%	0% Cooperation with conduct of allocation and requests for related information		2.443E-7
						AP_ABS	2.443E-7	

Facility Base Scores, Culpability Factor, Cooperation Factor and Adjusted Base Scores - Allocation Calculation

Passaic Pioneer Properties Co.

35 8th Street		Passaic	NJ	07055				
Facility BS	CUF	CUF_Category	CUF_NOTES		COF	COF_NOTES		Facility Adjusted BS
2.074E-4	5.0%	Occasional Noncompliance	Documented instances of dye wastes (in 1947, 1948, 1951, 1956, 1971, 1978) and cooling water (1969) being released to the Passaic River by tenants resulted in violations (PAS-00115125; PAS-00115406; PAS-00035373; PAS-00115415-426).		0.0%	0% Cooperation with conduct of allocation and requests for related information		2.178E-4
						AP_ABS	2.178E-4	

Allocation Facility Cmass Calculation

Pharmacia LLC						Pennsylvania Ave			Kearny		NJ	07032
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Constituent Of Concern (COC)	Overland, Fate & Transport C%	Dmass Overland, Fate & Transport	PrePVSC C%	Dmass PrePVSC	PVSC C%	Dmass PVSC	Direct Discharge C%	Dmass Direct Discharge	COC Total Pathway Cmass	COCA%	COC Historic CMass
Copper	100.00%	-	100.00%	-	0.00%	458.16	100.00%	-	0	1.018817E-2	0
Lead	100.00%	-	100.00%	-	0.00%	807.23	100.00%	-	0	1.018817E-2	0
Mercury	100.00%	45.85	100.00%	-	0.00%	9.00	100.00%	-	45.85	1.018817E-2	0.47
HPAHs	100.00%	12.09	100.00%	-	0.00%	-	100.00%	-	12.09	1.018817E-2	0.12
LPAHs	100.00%	12.64	100.00%	-	0.00%	-	100.00%	-	12.64	1.018817E-2	0.13
PCBs	100.00%	6,134.35	100.00%	-	0.00%	-	100.00%	-	6,134.35	1.018817E-2	62.5
DDx	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
Dieldrin	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
Dioxins_Furans	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0

Allocation Facility COC Base Scores - Protocol Calculation

Pharmacia LLC

Pennsylvania Ave

Kearny

NJ

07032

Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	COC Historic CMass	COC Relative Contribution	COC Base Score
Copper	0.69	2,100,000.00	0	0	0
Lead	0.01	3,200,000.00	0	0	0
Mercury	0.95	42,000.00	0.47	1.112E-5	1.057E-5
HPAHs	0.05	240,000.00	0.12	5.132E-7	2.566E-8
LPAHs	0.01	170,000.00	0.13	7.575E-7	7.575E-9
PCBs	12.87	26,000.00	62.5	2.404E-3	3.094E-2
DDx	1.37	27,000.00	0	0	0
Dieldrin	0.13	390.00	0	0	0
Dioxins_Furans	83.92	38.00	0	0	0

Allocation Facility COC Base Scores - Alternative Calculation

Pharmacia LLC					Pennsylvania Ave			Kearny	NJ	07032
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Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	Total Cmass (TCmass)	Total OS COC ACmass	COC %	COC Historic CMass	Facility OS COC Cmass	COC Relative Responsibility	COC Base Score
Copper	0.69	2,100,000.00	276,960.25	2,097,178.28	0	0	0	0	0
Lead	0.01	3,200,000.00	288,577.67	3,197,059.92	0	0	0	0	0
Mercury	0.95	42,000.00	4,322.53	41,955.96	1.061E-2	0.47	445.04	1.061E-2	1.008E-2
HPAHs	0.05	240,000.00	4,346,388.50	195,718.24	2.782E-6	0.12	0.54	2.782E-6	1.391E-7
LPAHs	0.01	170,000.00	3,012,835.14	139,304.72	4.195E-6	0.13	0.58	4.195E-6	4.195E-8
PCBs	12.87	26,000.00	20,066.54	25,795.56	3.057E-1	62.5	7,885.71	3.057E-1	3.934E+0
DDx	1.37	27,000.00	2,516.93	26,974.36	0	0	0	0	0
Dieldrin	0.13	390.00	1.27	389.99	0	0	0	0	0
Dioxins_Furans	83.92	38.00	3,729.82	0.00	0	0	0	0	0

Facility Bypass Information

Pharmacia LLC

Pennsylvania Ave

Kearny

NJ

07032

Item	Bypass Name	Bypass Type	Time %	Flow %	Bypass Notes
1	Newark Bay	Bypass	0.00%	0.00%	Did not discharge waste into the Passaic river

Discharge Calcs	POTW Discharge Information	COMMENTS/NOTES
	gal discharged per day/week/month	Discharge to Kearny POTW via NJPDES Permit #0022161
24	# hours/per day discharged	
7	#days/week discharged	
52	#weeks/yr discharged	
12,008,500	calc gal/yr discharge	1971 - 1972 Waste Effluent Survey = 19345000 gallons to sewer
		1990 - Pretreatment Inspection Report = 12800 gpd to sewer
1955	Yr Ops started	
1991	Yr Ops ceased	
36	calc #yrs facility operated	
Copper (Cu)		
36	#yrs facility discharged	
0.28	calc mg/L COC discharged	1976 wastewater = 0.2 mg/l
3.785	L per gallon (Merck Index)	May 1978 wastewater = 0.3 mg/l
0.000001	kg per mg (Merck Index)	Dec 1978 wastewater = 0.38 mg/l and 240 ug/l
458.16	calc kg COC discharged	
Lead (Pb)		
36	#yrs facility discharged	
0.49	calc mg/L COC discharged	1976 wastewater = 0.8mg/l
3.785	L per gallon (Merck Index)	May 1978 wastewater = 0.28 mg/l
0.000001	kg per mg (Merck Index)	Dec 1978 wastewater = 400ug/l
807.23	calc kg COC discharged	
Mercury (Hg)		
36	#yrs facility discharged	1976 wastewater = 0.01mg/l
0.0055	calc mg/L COC discharged	May 1978 wastewater = 0.0022 mg/l
3.785	L per gallon (Merck Index)	Dec 1978 wastewater = 43ug/l
0.000001	kg per mg (Merck Index)	
9.00	calc kg COC discharged	
HPAHs		
36	#yrs facility discharged	
	calc mg/L O&G	
10%	% O&G that is considered PAHs	
50%	% COC in O&G considered as PAHs	
-	calc mg/L HPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
LPAHs		
36	#yrs facility discharged	
	calc mg/L O&G	
10%	% O&G that is considered PAHs	
50%	% COC in O&G considered as PAHs	
-	calc mg/L LPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
PCBs		
23	#yrs facility discharged within PCBs Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
	calc kg COC discharged	
DDx		
18	#yrs facility discharged within DDx Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dieldrin		
33	#yrs facility discharged within Dieldrin Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxins/Furans		
36	#yrs facility discharged	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4-D		
37	#yrs facility discharged within 2,4-D Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,5-T		
31	#yrs facility discharged within 2,4,5-T Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,6-TCP		
21	#yrs facility discharged within 2,4,6-TCP Timeline	
	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Summary DMassCOC for POTW:		
458.16	kg Copper	
807.23	kg Lead	
9.00	kg Mercury	
-	kg HPAHs	
-	kg LPAHs	
-	kg PCBs	
-	kg DDx	
-	kg Dieldrin	
-	kg Dioxins/Furans	

Discharge Calcs	Direct Discharge Information	COMMENTS/NOTES
	# hours/day discharged	Prior to 1973 storm water was discharged direct to Passaic River
	# days/week discharged	
	# weeks/yr discharged	
17,298,391	# gals/yr directly discharged	
4.08	ft; 30yr average annual precipitation per Rutgers information	
	acres	
43,560	ft2 per acre	
26.00	acres	
50%	Percent Precip to River	
1955	Yr Ops started	
1973	Yr Ops ceased	
18	calc #yrs facility operated	
Copper (Cu)		
18	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Lead (Pb)		
18	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Mercury (Hg)		
18	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
HPAHs		
18	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
LPAHs		
18	#yrs facility discharged	Per FDR no Discharge
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
PCBs		
19	#yrs facility discharged within PCBs Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
DDx		
18	#yrs facility discharged within DDx Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dieldrin		
19	#yrs facility discharged within Dieldrin Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxins/Furans		
18	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4-D		
19	#yrs facility discharged within 2,4-D Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,5-T		
19	#yrs facility discharged within 2,4,5-T Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,6-TCP		
19	#yrs facility discharged within 2,4,6-TCP Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Summary DMassCOC for Direct Discharge:		
-	kg Copper	
-	kg Lead	
-	kg Mercury	
-	kg HPAHs	
-	kg LPAHs	
-	kg PCBs	
-	kg DDx	
-	kg Dieldrin	
-	kg Dioxins/Furans	

Discharge Calcs	Direct Discharge Information	ASSUMPTIONS, REFERENCES	COMMENTS/NOTES
	4.08 FEET/YEAR AVERAGE PRECIPITATION	Long term average annual precipitation includes floods and hurricane events occurring over time.	Data from Rutgers University provided.
	26 ACRES - TOTAL SITE AREA (acres)	FDR, Page 1	
	20 ACRES - AFFECTED AREA	Approximately one-quarter of site was covered by buildings (PAS-00074836).	Settling ponds included in acreage
	4,046.86 METERS ³ /ACRE		
	78,914 METERS ³ (AFFECTED AREA)		
	0.0001 METERS/YEAR (ERODED SOIL THICKNESS)	For this estimate, used a surface soil erosion rate of 0.1 mm/year, or 0.004 inches/year.	
	8 METERS ³ /YEAR (ERODED SOIL VOLUME)	VOLUME/YEAR DISCHARGED TO PASSAIC RIVER	
	1954 Year of ownership	FDR, Page 1	
	1994 Year sold	FDR, Page 1	
	40 NUMBER YEARS DISCHARGE		
	316 METERS ³ (TOTAL SOIL VOLUME DISCHARGED OVER TIME)		
	1,963 KG/M ³ SOIL DENSITY	Site surface soil consists of fill (fine to coarse sand, some gravel and silt, cinders, and wood (PAP-00035477-81, 489-513). Bulk density range for silty sand and gravel 1442 KG/M ³ to 2483 KG/M ³ , so use average. (http://structx.com/Soil_Properties_002.html)	
	619,631 KILOGRAMS (TOTAL SOIL DISCHARGED OVER TIME)	Site is located on historic fill (FDR page 8)	
Copper (Cu)	40 YEARS DISCHARGED		
	0 MG/KG (MAX CONCENTRATION)	Copper concentration in surface soil sample APSS-SS-02 at 645 mg/kg (PAS-00073580). Set to 0 since less than HF.	
	0.000001 kg per mg (Merck Index)		
	0.00 KILOGRAMS DISCHARGED		
Lead (Pb)	40 YEARS DISCHARGED		
	0 MG/KG (MAX CONCENTRATION)	Lead concentration in surface soil sample APSS-SS-02 at 676 mg/kg (PAS-00073580). Set to 0 since less than HF.	
	0.000001 kg per mg (Merck Index)		
	0.00 KILOGRAMS DISCHARGED		
Mercury (Hg)	40 YEARS DISCHARGED		
	74.00 MG/KG (MAX CONCENTRATION)	Mercury concentration in surface soil sample B16-SS-01 (PAS-00073580).	
	0.000001 kg per mg (Merck Index)		
	45.85 KILOGRAMS DISCHARGED		
PAHs (listed in Benzo(a)pyrene Equivalent conversion table)	40 YEARS DISCHARGED	Total concentration of PAH compounds for Benzo(a)pyrene Equivalent https://floridadep.gov/waste/petroleum-restoration/documents/benzo-pyrene-equivalents-conversion-table-one-sample .	
	19.5 MG/KG (TOTAL PAH MAX CONCENTRATION)	Sum of Benzo(a)pyrene Equivalent conversion concentrations using maximum concentration found in surface soil sample B-16 (PAS-00073586).	
	0.000001 kg per mg (Merck Index)		
	12.09 KILOGRAMS DISCHARGED		
PAHs (others detected)	40 YEARS DISCHARGED	Data below the Benzo(a)pyrene Equivalent Table	
	20 MG/KG (TOTAL PAH MAX CONCENTRATION)	Sum of Other PAHs concentrations using maximum concentration found in surface soil sample B-16 (PAS-00073586).	
	0.000001 kg per mg (Merck Index)		
	12.64 KILOGRAMS DISCHARGED		
PCBs	22 YEARS DISCHARGED	PCBs were used at the site from 1960 to 1972, and a PCB disposal area was excavated by 1982. PAP-00035449 indicates that there were two areas with PCB contamination. Reduced PCB discharge period to 22 years. However, additional soil containing PCBs was excavated in 1994	
	36000 MG/KG (MAX CONCENTRATION)	Maximum total PCB soil concentration in sample B-6 (0-2) (PAS-00073515).	
	0.000001 kg per mg (Merck Index)		
	6,134.35 KILOGRAMS DISCHARGED	PCB mass calculation adjusted to account for area of erosion shown by PAP-00035449, PAP-00035422, PAP-00035436	
DDx	0 YEARS DISCHARGED within DDx Timeline	NONE FOUND IN AVAILABLE DOCUMENTATION	
	MG/KG (MAX CONCENTRATION)		
	3.785 L per gallon (Merck Index)		
	0.000001 kg per mg (Merck Index)		
	0.00 KILOGRAMS DISCHARGED		

Contaminant	Concentration (mg/kg)	Toxic Equivalency Factor	Benzo(a)pyrene Equivalents
Benzo(a)pyrene	14.000	1.0	14.0000
Benzo(a)anthracene	16.000	0.1	1.6000
Benzo(b)fluoranthene	30.000	0.1	3.0000
Benzo(k)fluoranthene	0.000	0.01	0.0000
Chrysene	16.000	0.001	0.0160
Dibenz(a,h)anthracene	0.000	1.0	0.0000
Indeno(1,2,3-cd)pyrene	9.000	0.1	0.9000

DE Residential = 0.1 mg/kg; DE Industrial = 0.7 mg/kg

Total Benzo(a)pyrene Equivalents = 19.5

Sample B-16 (PAS-00073586)	
Anthracene	8.7
Acenaphthene	4.6
Acenaphthylene	0
Fluorene	3.9
Naphthalene	0
Phenanthrene	3.2
SUM	20.4

Dieldrin
0 YEARS DISCHARGED within Dieldrin Timeline

MG/KG (MAX CONCENTRATION)

3.785 L per gallon (Merck Index)

0.000001 kg per mg (Merck Index)

0.00 KILOGRAMS DISCHARGED

Dioxins/Furans
0 YEARS DISCHARGED

MG/KG (MAX CONCENTRATION)

0.000001 kg per mg (Merck Index)

0 calc kg COC discharged

SUMMARY CMASS ESTIMATES:
0.00 kg Copper
0.00 kg Lead
45.85 kg Mercury
12.09 kg PAHs (Benzo(a)pyrene Equivalent)
12.64 kg PAHs (Other)
6,134.35 kg PCBs
0.00 kg DDX
0.00 kg Dieldrin
0.00 kg Dioxins/Furans

6204.93 MASS (KG) DISCHARGED FROM SURFACE SOIL

Facility Base Scores, Culpability Factor, Cooperation Factor and Adjusted Base Scores - Protocol Calculation

Pharmacia LLC

Pennsylvania Ave

Kearny

NJ

07032

Facility BS	CUF	CUF_Category	CUF_NOTES	COF	COF_NOTES	Facility Adjusted BS
3.095E-2	5.0%	Occasional Noncompliance	According to an Administrative Consent Order between NJDEP and Monsanto, dated July 24, 1989 (1989 ACO), on November 14, 1986, Monsanto submitted to NJDEP a report which stated that in the mid-1960s approximately 2,000 gallons of heat transfer liquid containing PCBs were landfilled on site. NJDEP filed a civil complaint against Monsanto on November 1, 1988 for failure to immediately notify NJDEP of the full nature and extent of discharges of hazardous substances which it caused to occur at the site, including the release of PCBs and petroleum hydrocarbons. PCBs used as non-contact cooling fluid starting in 1960. 2,000 gallons of PCB oil released during a 1967-1968 production upset were disposed on-site in the PCB disposal area/pit. In 1972, during conversion to non-PCB containing fluid, a tank containing 2,000 gallons of PCB oil was also discarded in the PCB disposal area/pit (PAS-00073345). Placement of PCB containing material intended to contain appropriately contaminants onsite & disposal areas voluntarily remediated in coordination with NJDEP by facility in late 1980s (PAP-00717529-30).	-20.0%	-20% CPG/SPG member - Continuous provision of funding and participation in PRP Group(s) actions to cooperate with governmental/regulatory entities to address environmental or public harm created by own activities	2.630E-2

AP_ABS

2.630E-2

Facility Base Scores, Culpability Factor, Cooperation Factor and Adjusted Base Scores - Allocation Calculation

Pharmacia LLC

Pennsylvania Ave

Kearny

NJ

07032

Facility BS	CUF	CUF_Category	CUF_NOTES	COF	COF_NOTES	Facility Adjusted BS
3.944E+0	5.0%	Occasional Noncompliance	According to an Administrative Consent Order between NJDEP and Monsanto, dated July 24, 1989 (1989 ACO), on November 14, 1986, Monsanto submitted to NJDEP a report which stated that in the mid-1960s approximately 2,000 gallons of heat transfer liquid containing PCBs were landfilled on site. NJDEP filed a civil complaint against Monsanto on November 1, 1988 for failure to immediately notify NJDEP of the full nature and extent of discharges of hazardous substances which it caused to occur at the site, including the release of PCBs and petroleum hydrocarbons. PCBs used as non-contact cooling fluid starting in 1960. 2,000 gallons of PCB oil released during a 1967-1968 production upset were disposed on-site in the PCB disposal area/pit. In 1972, during conversion to non-PCB containing fluid, a tank containing 2,000 gallons of PCB oil was also discarded in the PCB disposal area/pit (PAS-00073345). Placement of PCB containing material intended to contain appropriately contaminants onsite & disposal areas voluntarily remediated in coordination with NJDEP by facility in late 1980s (PAP-00717529-30).	-20.0%	-20% CPG/SPG member - Continuous provision of funding and participation in PRP Group(s) actions to cooperate with governmental/regulatory entities to address environmental or public harm created by own activities	3.353E+0

AP_ABS

3.353E+0

ARR2630

Allocation Facility Cmass Calculation

Pitt Consol Chemical Company

191 Doremus Avenue

Newark

NJ

07105

Constituent Of Concern (COC)	Overland, Fate & Transport C%	Dmass Overland, Fate & Transport	PrePVSC C%	Dmass PrePVSC	PVSC C%	Dmass PVSC	Direct Discharge C%	Dmass Direct Discharge	COC Total Pathway Cmass	COC A%	COC Historic CMass
Copper	100.00%	3,007.29	100.00%	-	0.00%	72.00	100.00%	882.9	3,890.15	1.018817E-2	39.63
Lead	100.00%	22,798.99	100.00%	-	0.00%	131.26	100.00%	132.7	22,931.66	1.018817E-2	233.63
Mercury	100.00%	293.13	100.00%	-	0.00%	0.13	100.00%	-	293.13	1.018817E-2	2.99
HPAHs	100.00%	11,062.83	100.00%	-	0.00%	-	100.00%	41.2	11,104.08	1.018817E-2	113.13
LPAHs	100.00%	24,342.31	100.00%	-	0.00%	497.02	100.00%	27.5	24,369.81	1.018817E-2	248.28
PCBs	100.00%	447.23	100.00%	-	0.00%	-	100.00%	-	447.23	1.018817E-2	4.56
DDx	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
Dieldrin	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
Dioxins_Furans	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0

Allocation Facility COC Base Scores - Protocol Calculation

Pitt Consol Chemical Company

191 Doremus Avenue

Newark

NJ

07105

Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	COC Historic CMass	COC Relative Contribution	COC Base Score
Copper	0.69	2,100,000.00	39.63	1.887E-5	1.302E-5
Lead	0.01	3,200,000.00	233.63	7.301E-5	7.301E-7
Mercury	0.95	42,000.00	2.99	7.111E-5	6.755E-5
HPAHs	0.05	240,000.00	113.13	4.714E-4	2.357E-5
LPAHs	0.01	170,000.00	248.28	1.460E-3	1.460E-5
PCBs	12.87	26,000.00	4.56	1.752E-4	2.255E-3
DDx	1.37	27,000.00	0	0	0
Dieldrin	0.13	390.00	0	0	0
Dioxins_Furans	83.92	38.00	0	0	0

Allocation Facility COC Base Scores - Alternative Calculation

Pitt Consol Chemical Company

191 Doremus Avenue

Newark

NJ

07105

Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	Total Cmass (TCmass)	Total OS COC ACmass	COC %	COC Historic CMass	Facility OS COC Cmass	COC Relative Responsibility	COC Base Score
Copper	0.69	2,100,000.00	276,960.25	2,097,178.28	1.405E-2	39.63	29,456.72	1.405E-2	9.692E-3
Lead	0.01	3,200,000.00	288,577.67	3,197,059.92	7.946E-2	233.63	254,052.55	7.946E-2	7.946E-4
Mercury	0.95	42,000.00	4,322.53	41,955.96	6.781E-2	2.99	2,845.22	6.781E-2	6.442E-2
HPAHs	0.05	240,000.00	4,346,388.50	195,718.24	2.555E-3	113.13	500.02	2.555E-3	1.277E-4
LPAHs	0.01	170,000.00	3,012,835.14	139,304.72	8.089E-3	248.28	1,126.79	8.089E-3	8.089E-5
PCBs	12.87	26,000.00	20,066.54	25,795.56	2.229E-2	4.56	574.91	2.229E-2	2.868E-1
DDx	1.37	27,000.00	2,516.93	26,974.36	0	0	0	0	0
Dieldrin	0.13	390.00	1.27	389.99	0	0	0	0	0
Dioxins_Furans	83.92	38.00	3,729.82	0.00	0	0	0	0	0

Facility Bypass Information

Pitt Consol Chemical Company

191 Doremus Avenue

Newark

NJ

07105

Item	Bypass Name	Bypass Type	Time %	Flow %	Bypass Notes
1	Newark Bay	Bypass	0.00%	0.00%	Did not discharge waste into the Passaic river

Discharge Calcs	POTW Discharge Information	COMMENTS/NOTES
185,000	gal discharged per day/week/month (PAS-00014145)	It is assumed that from 1981-1986 that discharge went to the PVSC.
24	# hours/per day discharged	Flow assumed to be 185,000 gpd and 67Mgal/yr
7	#days/week discharged	
52	#weeks/yr discharged	
67,340,000	calc gal/yr discharge	
1981	Yr Ops started	
1986	Yr Ops ceased	
5	calc #yrs facility operated	
Copper (Cu)		
5	#yrs facility discharged	
0.0565	calc mg/L COC discharged (PAS-00014145, PAS-00145500)	Copper data: 0.05 mg/l 1981 and 63 ug/l in 1984. 63ug/l=0.063mg/l
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
72.00	calc kg COC discharged	
Lead (Pb)		
5	#yrs facility discharged	
0.03	calc mg/L COC discharged (PAS-00145500)	Lead data at 103 ug/l in 1984. 103ug/l=0.103mg/l
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
131.26	calc kg COC discharged	
Mercury (Hg)		
5	#yrs facility discharged	
0.0001	calc mg/L COC discharged (PAS-00145500)	Mercury was at <0.1ug/l in 1984. assume 0.1ug/l=0.0001mg/l
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
0.1274	calc kg COC discharged	
HPAhs		
5	#yrs facility discharged	
-	calc mg/L HPAhs (PAS-00045500)	Naphthalene data at 390ug/l in 1984, all others at ND. Assume no HPAhs
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
LPAHs		
5	#yrs facility discharged	
0.390	calc mg/L LPAHs (PAS-00045500)	Naphthalene data at 390ug/l in 1984, all others at ND. 390ug/l=0.390mg/l
3.785	L per gallon (Merck Index)	Naphthalene is considered a LMW PAH
0.000001	kg per mg (Merck Index)	
497.02	calc kg COC discharged	
PCBs		
0	#yrs facility discharged within PCBs Timeline	
-	calc mg/L COC discharged (PAS-00145500)	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
DDx		
0	#yrs facility discharged within DDx Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dieldrin		
6	#yrs facility discharged within Dieldrin Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxins/Furans		
5	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4-D		
6	#yrs facility discharged within 2,4-D Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,5-T		
5	#yrs facility discharged within 2,4,5-T Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,6-TCP		
-5	#yrs facility discharged within 2,4,6-TCP Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Summary DMassCOC for POTW:		
72.00	kg Copper	
131.26	kg Lead	
0.13	kg Mercury	
-	kg HPAhs	
497.02	kg LPAHs	
-	kg PCBs	
-	kg DDx	
-	kg Dieldrin	
-	kg Dioxins/Furans	

Discharge Calcs	Direct Discharge Information	COMMENTS/NOTES
24	# hours/day discharged	
7	# days/week discharged	
52	# weeks/yr discharged	
45,521,582	# gals/yr directly discharged	ranged from 72000 gpd (1975) up to 185000 gpd (1978). Capacity was 500 gpm. Data indicated 67Mgpy/(PAS-00014145, PAS-00052111, PAS00000246, PAS00000568)
4.08	ft; 30yr average annual precipitation per Rutgers information	N/A
acres		
43,560	ft2 per acre	N/A
1955	Yr Ops started	1972 facility connected to sanitary sewer to the PVSC. Dam built by the City of Newark in 1969 redirected
1969	Yr Ops ceased	discharge in the CSO to the PVSC treatment facility. PAS-00014143
14	calc #yrs facility operated	
Copper (Cu)		
14	#yrs facility discharged	
0.366	calc mg/L COC discharged	1972=1-10ppm (assume 1mg/l); 1978 Killam=0.048mg/l; 1978 WWQ=0.05mg/l (PAS-00014145, PAS-0005211)
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
882.86	calc kg COC discharged	
Lead (Pb)		
14	#yrs facility discharged	
0.055	calc mg/L COC discharged	1978=.02mg/l; 1980=<.2mg/l, use .1 mg/l (PAS-0005211, PAS-0000577)
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
132.67	calc kg COC discharged	
Mercury (Hg)		
14	#yrs facility discharged	
-	calc mg/L COC discharged	PAS-00052111
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
HPAHs		
14	#yrs facility discharged	
0.2850	calc mg/L COC discharged (PAS-00014574)	From waste effluent survey 285 ug/l Oil (assumed to be ug/l as units not provided in background docs)
10%	% O&G that is considered PAHs	Calculation of HMW PAHs from Oil and Grease data.
60%	% PAHs considered as HPAHs	
0.0171	calc mg/L HPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
41	calc kg COC discharged	
LPAHs		
14	#yrs facility discharged	
0.2850	calc mg/L COC discharged (PAS-00014574)	From waste effluent survey 285 ug/l Oil (assumed to be ug/l as units not provided in background docs)
10%	% O&G that is considered PAHs	Calculation of LMW PAHs from Oil and Grease data.
40%	% PAHs considered as LPAHs	
0.0114	calc mg/L LPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
27	calc kg COC discharged	
PCBs		
15	#yrs facility discharged within PCBs Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
DDx		
15	#yrs facility discharged within DDx Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dieldrin		
15	#yrs facility discharged within Dieldrin Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxins/Furans		
14	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4-D		
15	#yrs facility discharged within 2,4-D Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,5-T		
15	#yrs facility discharged within 2,4,5-T Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,6-TCP		
15	#yrs facility discharged within 2,4,6-TCP Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Summary DMassCOC for Direct Discharge:		
882.86	kg Copper	
132.67	kg Lead	
-	kg Mercury	
41.25	kg HPAHs	
27.50	kg LPAHs	
-	kg PCBs	
-	kg DDx	
-	kg Dieldrin	
-	kg Dioxins/Furans	

Discharge Calcs
Direct Discharge Information
4.08333333 FEET/YEAR AVERAGE PRECIPITATION

ASSUMPTIONS, REFERENCES
Long term average annual precipitation includes floods and hurricane events occurring over time.

COMMENTS/NOTES
Data from Rutgers University.

37 ACRES - TOTAL SITE AREA (acres)
25 ACRES - AFFECTED AREA

FDR page 1; confirmed with Google Earth
Based on PAP-00009386, it is estimated that approximately 1/3 of the site was occupied by buildings. Therefore, 2/3 of the site was assumed to be exposed soil prior to 1986 (approximately 25 acres).

Since the site closed in 1983, and all production facilities were dismantled in 1986, a two-part estimate - pre-1986 and post-1986 have been calculated. According to PAP-00009411 the site cap was still in the planning phase after 2017. It is assumed that the site wide cap has yet to be implemented. This is the first part of the calculation assuming that 2/3 of the site is exposed soil from 1955 to 1986.

4,046.86 METERS²/ACRE

101,172 METERS² (AFFECTED AREA)

0.0001 METERS/YEAR (ERODED SOIL THICKNESS)

For this estimate, used a surface soil erosion rate of 0.1 mm/year, or 0.004 inches/year.

10 METERS³/YEAR (ERODED SOIL VOLUME)

VOLUME/YEAR DISCHARGED TO PASSAIC RIVER

1955 Year site operations began

Pitt-Consol purchased the site in 1955 from Reilly Tar & Chemical, Inc. (FDR page 1)

1986 Year site was dismantled and decontaminated

Pitt-Consol operated at the site until May 1983 when all manufacturing was discontinued. The site was then dismantled and decontaminated from 1984 to 1986 (FDR page 1)

31 NUMBER YEARS DISCHARGE

313.63165 METERS³ (TOTAL SOIL VOLUME DISCHARGED OVER TIME)

1962.5 KG/M3 SOIL DENSITY

Fill includes sand, gravel, rock, cinders, ash, brick, concrete, wood, slag, metal, glass and trash (PAP-00009973). Used "silty sand and gravel" soil type from http://structx.com/Soil_Properties_002.html. Bulk density range 1442 KG/M3 to 2483 KG/M3, so use average. Average is 1962.5 kg/m³

615,502 KILOGRAMS (TOTAL SOIL DISCHARGED OVER TIME)

The site is located on regional Historic Fill (FDR page 12)

Copper (Cu)

31 YEARS DISCHARGED

2,770 MG/KG (MAX CONCENTRATION)

Table 2 of the RIR (PAP-00009951, pdf page 91) showed a maximum concentration at location J16-01, depth of 0-2ft in AOC 4.

0.000001 kg per mg (Merck Index)

1,705 KILOGRAMS DISCHARGED

Lead (Pb)

31 YEARS DISCHARGED

21,000 MG/KG (MAX CONCENTRATION)

Lead concentration in onsite soils at location TPZ10-E depth of 2.0-3.0 ft in AOC 5 (PAP-00009951, pdf page 163, Table 3)

0.000001 kg per mg (Merck Index)

12,926 KILOGRAMS DISCHARGED

Mercury (Hg)

31 YEARS DISCHARGED

270 MG/KG (MAX CONCENTRATION)

Mercury concentration in onsite soils at location F05-01, depth of 0-2 ft in AOC 6 (PAP-00009951, pdf page 181, Table 4)

0.000001 kg per mg (Merck Index)

166 KILOGRAMS DISCHARGED

PAHs (listed in Benzo(a)pyrene Equivalent conversion table)

31 YEARS DISCHARGED
10189.9 MG/KG (TOTAL PAH MAX CONCENTRATION)
0.000001 kg per mg (Merck Index)

PAHs (others detected)
6,272 KILOGRAMS DISCHARGED

31 YEARS DISCHARGED
25,880 MG/KG (TOTAL PAH MAX CONCENTRATION)
0.000001 kg per mg (Merck Index)

PCBs
15,929 KILOGRAMS DISCHARGED

31 YEARS DISCHARGED
418 MG/KG (MAX OF REPORTED CONCENTRATIONS)
0.000001 kg per mg (Merck Index)

SUMMARY CMASST ESTIMATES:
1,704.94 kg Copper
12,925.54 kg Lead
166.19 kg Mercury
6,271.90 kg PAHs (Benzo(a)pyrene Equivalent)
15,929.19 kg PAHs (Other)
257.28 kg PCBs

37255.05 MASS (KG) DISCHARGED FROM SURFACE SOIL

Total concentration of PAH compounds for Benzo(a)pyrene Equivalent
<https://floridadep.gov/waste/petroleum-restoration/documents/benzo-pyrene-equivalents-conversion-table-one-sample>.

Max concentrations found in PTC-S-E03-01 (0-2 ft bgs). (FDR page 10; Table 3 of PAP-00009951, pdf page 119)

Contaminant	Concentration (mg/kg)	Toxic Equivalency Factor	Benzo(a)pyrene Equivalents
Benzo(a)pyrene	7400.000	1.0	7400.0000
Benzo(a)anthracene	8600.000	0.1	860.0000
Benzo(b)fluoranthene	8700.000	0.1	870.0000
Benzo(k)fluoranthene	4100.000	0.01	41.0000
Chrysene	8900.000	0.001	8.9000
Dibenz(a,h)anthracene	660.000	1.0	660.0000
Indeno(1,2,3-cd)pyrene	3500.000	0.1	350.0000

DE Residential = 0.1 mg/kg; DE Industrial = 0.7 mg/kg

Total Benzo(a)pyrene Equivalents = 10189.9

PTC-S-E03-01 (0-2 ft bgs) (PAP-00009951 pdf p 119-120)	
Anthracene	4100
Acenaphthene	2400
Acenaphthylene	0
Fluorene	2700
Naphthalene	1200
Phenanthrene	15000
2-Methylnaphthalene	480
SUM	25880

Discharge Calcs
Direct Discharge Information
4.08333333 FEET/YEAR AVERAGE PRECIPITATION

ASSUMPTIONS, REFERENCES
Long term average annual precipitation includes floods and hurricane events occurring over time.

COMMENTS/NOTES
Data from Rutgers University.

37 ACRES - TOTAL SITE AREA (acres)
37 ACRES - AFFECTED AREA

FDR page 1; confirmed with Google Earth
Since the site closed in 1983, and all production facilities were dismantled in 1986, a two-part estimate - pre-1986 and post-1986 have been calculated. According to PAP-00009411 the site cap was still in the planning phase after 2017. It is assumed that the site wide cap has yet to be implemented. This is the second part of the calculation assuming that all buildings have been demolished and the site is bare soil from 1986 to present day.

4,046.86 METERS²/ACRE

149,734 METERS² (AFFECTED AREA)

0.0001 METERS/YEAR (ERODED SOIL THICKNESS)

For this estimate, used a surface soil erosion rate of 0.1 mm/year, or 0.004 inches/year.

15 METERS³/YEAR (ERODED SOIL VOLUME)

VOLUME/YEAR DISCHARGED TO PASSAIC RIVER

1986 Year site was dismantled and decontaminated

Pitt-Consol purchased the site in 1955 from Reilly Tar & Chemical, Inc. (FDR page 1)

2002 Pitt-Consol is the current owner of the site (FDR page 1)

Pitt-Consol operated at the site until May 1983 when all manufacturing was discontinued. The site was then dismantled and decontaminated from 1984 to 1986 (FDR page 1)

End year of discharge period through 2002. A cover consisting of permeable fabric geomembrane and fill consisting of a layer of crushed stone and gravel, nominally between 2 and 5 ft thick, was placed in 2002 (PAP-00009973).

16 NUMBER YEARS DISCHARGE

239.574112 METERS³ (TOTAL SOIL VOLUME DISCHARGED OVER TIME)

1962.5 KG/M3 SOIL DENSITY

Fill includes sand, gravel, rock, cinders, ash, brick, concrete, wood, slag, metal, glass and trash (PAP-00009973). Used "silty sand and gravel" soil type from http://structx.com/Soil_Properties_002.html. Bulk density range 1442 KG/M3 to 2483 KG/M3, so use average. Average is 1962.5 kg/m³

470,164 KILOGRAMS (TOTAL SOIL DISCHARGED OVER TIME)

Copper (Cu)

16 YEARS DISCHARGED
2,770 MG/KG (MAX CONCENTRATION)

Table 2 of the RIR (PAP-00009951, pdf page 91) showed a maximum concentration at location J16-01, depth of 0-2ft in AOC 4.

0.000001 kg per mg (Merck Index)
1,302 KILOGRAMS DISCHARGED

Lead (Pb)

16 YEARS DISCHARGED
21,000 MG/KG (MAX CONCENTRATION)

Lead concentration in onsite soils at location TPZ10-E depth of 2.0-3.0 ft in AOC 5 (PAP-00009951, pdf page 163, Table 3).

0.000001 kg per mg (Merck Index)
9,873 KILOGRAMS DISCHARGED

Mercury (Hg)

16 YEARS DISCHARGED
270 MG/KG (MAX CONCENTRATION)

Mercury concentration in onsite soils at location F05-01, depth of 0-2 ft in AOC 6 (PAP-00009951, pdf page 181, Table 4)

0.000001 kg per mg (Merck Index)
127 KILOGRAMS DISCHARGED

PAHs (listed in Benzo(a)pyrene Equivalent conversion table)

16 YEARS DISCHARGED

10189.9 MG/KG (TOTAL PAH AVERAGE CONCENTRATION)

0.000001 kg per mg (Merck Index)

4,791 KILOGRAMS DISCHARGED

PAHs (others detected)

16 YEARS DISCHARGED

17,894 MG/KG (TOTAL PAH MAX CONCENTRATION)

0.000001 kg per mg (Merck Index)

8,413 KILOGRAMS DISCHARGED

PCBs

16 YEARS DISCHARGED

404 MG/KG (MAX OF REPORTED CONCENTRATIONS)

0.000001 kg per mg (Merck Index)

190 KILOGRAMS DISCHARGED

SUMMARY CMASST ESTIMATES:

1,302.35 kg Copper

9,873.45 kg Lead

126.94 kg Mercury

4,790.93 kg PAHs (Benzo(a)pyrene Equivalent)

8,413.12 kg PAHs (Other)

189.95 kg PCBs

24696.74 MASS (KG) DISCHARGED FROM SURFACE SOIL

Total concentration of PAH compounds for Benzo(a)pyrene Equivalent
<https://floridadep.gov/waste/petroleum-restoration/documents/benzo-pyrene-equivalents-conversion-table-one-sample>

Max concentrations found in PTC-S-E03-01 (0-2 ft bgs). (FDR page 10; Table 3 of PAP-00009951, pdf page 119)

Data below the Benzo(a)pyrene Equivalent Table

PAP-0009951 pdf 173-174 sample PTC-S-C05-01(0-2)

Contaminant	Concentration (mg/kg)	Toxic Equivalency Factor	Benzo(a)pyrene Equivalents
Benzo(a)pyrene	7400.000	1.0	7400.0000
Benzo(a)anthracene	8600.000	0.1	860.0000
Benzo(b)fluoranthene	8700.000	0.1	870.0000
Benzo(k)fluoranthene	4100.000	0.01	41.0000
Chrysene	8900.000	0.001	8.9000
Dibenz(a,h)anthracene	660.000	1.0	660.0000
Indeno(1,2,3-cd)pyrene	3500.000	0.1	350.0000

DE Residential = 0.1 mg/kg; DE Industrial = 0.7 mg/kg

Total Benzo(a)pyrene Equivalents = 10189.9

PAP-0009951 pdf 173-174 sample PTC-S-C05-01(0-2)

Anthracene	1400
Acenaphthene	1300
Acenaphthylene	94
Fluorene	1500
Naphthalene	7400
Phenanthrene	4300
2-Methylnaphthalene	1900
SUM	17894

Facility Base Scores, Culpability Factor, Cooperation Factor and Adjusted Base Scores - Protocol Calculation

Pitt Consol Chemical Company

191 Doremus Avenue

Newark

NJ

07105

Facility BS	CUF	CUF_Category	CUF_NOTES	COF	COF_NOTES	Facility Adjusted BS
2.375E-3	10.0%	Periodic Noncompliance	An incidence report to the Coast Guard, dated May 12, 1981, is listed on the inspection report and states that an "unknown" red liquid was released into the Passaic River by dumping or illegal discharge from Pitt-Consol on May 11, 1981. (PAS-00051363, PAS-00051497, PAS-00051507). Based on the Summary of Existing Environmental Data, Pitt-Consol Site, dated July 24, 1989, an oily, creosote-like staining was observed in fill on the northern portion of the site and coal-like and tar-like material have been observed in areas of the site, primarily on the western half of the facility in fill material (PAP-00016509-10). The PVSC Annual Report for 1972 stated that industrial waste was discharging to the Passaic River from the Roanoke Ave storm sewer, even though a concrete dam had been built to prevent overflow from the sanitary sewer into the storm sewer. In order to locate the source of the pollution, the Roanoke Avenue storm sewer was cleaned in late 1971. While preparing a visual inspection of the storm sewer, a manhole on the Pitt-Consol property exploded, injuring three men. Inspection of the sewer with a camera in January 1972 found a 10 inch connection discharging polluted water from the Pitt-Consol facility (PAS-00006274-5).	-20.0%	-20% CPG/SPG member - Continuous provision of funding and participation in PRP Group(s) actions to cooperate with governmental/regulatory entities to address environmental or public harm created by own activities	2.137E-3

AP_ABS

2.137E-3

Facility Base Scores, Culpability Factor, Cooperation Factor and Adjusted Base Scores - Allocation Calculation

Pitt Consol Chemical Company

191 Doremus Avenue

Newark

NJ

07105

Facility BS	CUF	CUF_Category	CUF_NOTES	COF	COF_NOTES	Facility Adjusted BS
3.620E-1	10.0%	Periodic Noncompliance	An incidence report to the Coast Guard, dated May 12, 1981, is listed on the inspection report and states that an "unknown" red liquid was released into the Passaic River by dumping or illegal discharge from Pitt-Consol on May 11, 1981. (PAS-00051363, PAS-00051497, PAS-00051507). Based on the Summary of Existing Environmental Data, Pitt-Consol Site, dated July 24, 1989, an oily, creosote-like staining was observed in fill on the northern portion of the site and coal-like and tar-like material have been observed in areas of the site, primarily on the western half of the facility in fill material (PAP-00016509-10). The PVSC Annual Report for 1972 stated that industrial waste was discharging to the Passaic River from the Roanoke Ave storm sewer, even though a concrete dam had been built to prevent overflow from the sanitary sewer into the storm sewer. In order to locate the source of the pollution, the Roanoke Avenue storm sewer was cleaned in late 1971. While preparing a visual inspection of the storm sewer, a manhole on the Pitt-Consol property exploded, injuring three men. Inspection of the sewer with a camera in January 1972 found a 10 inch connection discharging polluted water from the Pitt-Consol facility (PAS-00006274-5).	-20.0%	-20% CPG/SPG member - Continuous provision of funding and participation in PRP Group(s) actions to cooperate with governmental/regulatory entities to address environmental or public harm created by own activities	3.258E-1

AP_ABS

3.258E-1

Allocation Facility Cmass Calculation

PMC, Inc.

450 Schuyler Avenue

Kearny

NJ

Constituent Of Concern (COC)	Overland, Fate & Transport C%	Dmass Overland, Fate & Transport	PrePVSC C%	Dmass PrePVSC	PVSC C%	Dmass PVSC	Direct Discharge C%	Dmass Direct Discharge	COC Total Pathway Cmass	COCA%	COC Historic CMass
Copper	100.00%	-	100.00%	-	1.21%	15,077.10	100.00%	49,175.3	49,358.02	1.018817E-2	502.87
Lead	100.00%	-	100.00%	-	1.21%	9,231.83	100.00%	40,836.5	40,948.42	1.018817E-2	417.19
Mercury	100.00%	-	100.00%	-	1.21%	79.43	100.00%	289.9	290.85	1.018817E-2	2.96
HPAHs	100.00%	-	100.00%	-	1.21%	750,822.13	100.00%	1,850,387.4	1,859,487.41	1.018817E-2	18,944.78
LPAHs	100.00%	-	100.00%	-	1.21%	500,548.09	100.00%	1,233,591.6	1,239,658.31	1.018817E-2	12,629.85
PCBs	100.00%	-	100.00%	-	1.21%	-	100.00%	-	0	1.018817E-2	0
DDx	100.00%	-	100.00%	-	1.21%	-	100.00%	-	0	1.018817E-2	0
Dieldrin	100.00%	-	100.00%	-	1.21%	-	100.00%	-	0	1.018817E-2	0
Dioxins_Furans	100.00%	-	100.00%	-	1.21%	-	100.00%	-	0	1.018817E-2	0

Allocation Facility COC Base Scores - Protocol Calculation

PMC, Inc.

450 Schuyler Avenue

Kearny

NJ

Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	COC Historic CMass	COC Relative Contribution	COC Base Score
Copper	0.69	2,100,000.00	502.87	2.395E-4	1.652E-4
Lead	0.01	3,200,000.00	417.19	1.304E-4	1.304E-6
Mercury	0.95	42,000.00	2.96	7.055E-5	6.703E-5
HPAHs	0.05	240,000.00	18,944.78	7.894E-2	3.947E-3
LPAHs	0.01	170,000.00	12,629.85	7.429E-2	7.429E-4
PCBs	12.87	26,000.00	0	0	0
DDx	1.37	27,000.00	0	0	0
Dieldrin	0.13	390.00	0	0	0
Dioxins_Furans	83.92	38.00	0	0	0

Allocation Facility COC Base Scores - Alternative Calculation

PMC, Inc.

450 Schuyler Avenue

Kearny

NJ

Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	Total Cmass (TCmass)	Total OS COC ACmass	COC %	COC Historic CMass	Facility OS COC Cmass	COC Relative Responsibility	COC Base Score
Copper	0.69	2,100,000.00	276,960.25	2,097,178.28	1.782E-1	502.87	373,745.19	1.782E-1	1.230E-1
Lead	0.01	3,200,000.00	288,577.67	3,197,059.92	1.419E-1	417.19	453,654.51	1.419E-1	1.419E-3
Mercury	0.95	42,000.00	4,322.53	41,955.96	6.729E-2	2.96	2,823.07	6.729E-2	6.392E-2
HPAHs	0.05	240,000.00	4,346,388.50	195,718.24	4.278E-1	18,944.78	83,732.88	4.278E-1	2.139E-2
LPAHs	0.01	170,000.00	3,012,835.14	139,304.72	4.115E-1	12,629.85	57,318.19	4.115E-1	4.115E-3
PCBs	12.87	26,000.00	20,066.54	25,795.56	0	0	0	0	0
DDx	1.37	27,000.00	2,516.93	26,974.36	0	0	0	0	0
Dieldrin	0.13	390.00	1.27	389.99	0	0	0	0	0
Dioxins_Furans	83.92	38.00	3,729.82	0.00	0	0	0	0	0

Facility Bypass Information

PMC, Inc.

450 Schuyler Avenue

Kearny

NJ

Item	Bypass Name	Bypass Type	Time %	Flow %	Bypass Notes
1	Ivy	CSO	1.83%	66.23%	

Discharge Calcs	POTW Discharge Information	COMMENTS/NOTES
	gal discharged per day	Prior to 1986 all wastewater discharged to Frank's Creek
	# hours/per day discharged	
	#days/week discharged	
	#weeks/yr discharged	
1,816,904.418	calc gal/yr discharge	
1986	Yr Ops started	
2007	Yr Ops ceased	
21	calc #yrs facility operated	
Copper (Cu)		
21	#yrs facility discharged	1990 PVSC Sewer App
0.1044	calc mg/L COC discharged PAS00014827, PAS00014918, PAS00014974	1994 inspection Reports
3.785	L per gallon (Merck Index)	1995 PVSC Sewer App
0.000001	kg per mg (Merck Index)	
15,077.10	calc kg COC discharged	
Lead (Pb)		
21	#yrs facility discharged	
0.0639	calc mg/L COC discharged PAS00014827, PAS00014918, PAS00014974	1990 PVSC Sewer App
3.785	L per gallon (Merck Index)	1994 inspection Reports
0.000001	kg per mg (Merck Index)	1995 PVSC Sewer App
9,231.83	calc kg COC discharged	
Mercury (Hg)		
21	#yrs facility discharged	
0.00055	calc mg/L COC discharged PAS00014827, PAS00014918, PAS00014974	1990 PVSC Sewer App
3.785	L per gallon (Merck Index)	1994 inspection Reports
0.000001	kg per mg (Merck Index)	1995 PVSC Sewer App
79.43	calc kg COC discharged	
HPAHs		
21	#yrs facility discharged	
86.65	calc mg/L O&G PAS00014827 & PAS00014974	calcs used to convert mg/kg O&G to HPAHs
10%	% O&G that is considered PAHs	1990 PVSC Sewer App
60%	% PAHs considered as HPAHs	1995 PVSC Sewer App
5	calc mg/L HPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
750,822.15	calc kg COC discharged	
LPAHs		
21	#yrs facility discharged	
86.65	calc mg/L O&G PAS00014827 & PAS00014974	calcs used to convert mg/kg O&G to LPAHs
10%	% O&G that is considered PAHs	1990 PVSC Sewer App
40%	% PAHs considered as LPAHs	1995 PVSC Sewer App
3	calc mg/L LPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
500,548.10	calc kg COC discharged	
PCBs		
-8	#yrs facility discharged within PCBs Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
DDx		
-13	#yrs facility discharged within DDx Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dieldrin		
2	#yrs facility discharged within Dieldrin Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxins/Furans		
21	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4-D		
22	#yrs facility discharged within 2,4-D Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,5-T		
0	#yrs facility discharged within 2,4,5-T Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,6-TCP		
-10	#yrs facility discharged within 2,4,6-TCP Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Summary DMassCOC for POTW:		
15,077.10	kg Copper	
9,231.83	kg Lead	
79.43	kg Mercury	
750,822.15	kg HPAHs	
500,548.10	kg LPAHs	
-	kg PCBs	
-	kg DDx	
-	kg Dieldrin	
-	kg Dioxins/Furans	

Discharge Calcs	Direct Discharge Information	COMMENTS/NOTES
	# hours/day discharged	Discharge to Frank's Creek which flows to Passaic River
	# days/week discharged	1970 Data
	# weeks/yr discharged	1977 NPDES Permit Application
4,212,758.786	# gals/yr directly discharged PAS00015015, PAS00014827, PAS00015012, PAS00014918, PAS00014974	1990 PVSC Permit Application
4.08	ft; 30yr average annual precipitation per Rutgers information	1994 Inspection Reports
43,560	acres	1995 PVSC Sewer Application
ft2 per acre		
1973	Yr Ops started	
2007	Yr Ops ceased	
36	calc #hrs facility operated	
Copper (Cu)		
36	#yrs facility discharged	1990 PVSC Sewer App
0.0857	calc mg/L COC discharged PAS00014827, PAS00014918, PAS00014974	1994 inspection Reports
3.785	L per gallon (Merck Index)	1995 PVSC Sewer App
0.000001	kg per mg (Merck Index)	1985 Wastewater Sample
49,175.28	calc kg COC discharged	
Lead (Pb)		
36	#yrs facility discharged	1990 PVSC Sewer App
0.0711	calc mg/L COC discharged PAS00014827, PAS00014918, PAS00014974	1994 inspection Reports
3.785	L per gallon (Merck Index)	1995 PVSC Sewer App
0.000001	kg per mg (Merck Index)	1985 Wastewater Sample
40,836.53	calc kg COC discharged	
Mercury (Hg)		
36	#yrs facility discharged	
0.00051	calc mg/L COC discharged PAS00014827, PAS00014918, PAS00014974	1990 PVSC Sewer App
3.785	L per gallon (Merck Index)	1994 inspection Reports
0.000001	kg per mg (Merck Index)	1995 PVSC Sewer App
289.89	calc kg COC discharged	calcs used to convert mg/kg O&G to HPAHs
HPAHs		
36	#yrs facility discharged	
63.10	calc mg/L O&G PAS00014827 & PAS00014974	calcs used to convert mg/kg O&G to HPAHs; remove if not needed
10%	% O&G that is considered PAHs	1990 PVSC Sewer App
60%	% COC in O&G considered as PAHs	1995 PVSC Sewer App
.4	calc mg/L HPAHs	1985 Wastewater Sample
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
2,173,279.52	calc kg COC discharged	
LPAHs		
36	#yrs facility discharged	
63.10	calc mg/L O&G PAS00014827 & PAS00014974	calcs used to convert mg/kg O&G to LPAHs; remove if not needed
10%	% O&G that is considered PAHs	1990 PVSC Sewer App
40%	% COC in O&G considered as PAHs	1995 PVSC Sewer App
.3	calc mg/L LPAHs	1985 Wastewater Sample
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
1,448,853.01	calc kg COC discharged	
PCBs		
7	#yrs facility discharged within PCBs Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
DDx		
2	#yrs facility discharged within DDx Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dieldrin		
17	#yrs facility discharged within Dieldrin Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxins/Furans		
36	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4-D		
37	#yrs facility discharged within 2,4-D Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,5-T		
15	#yrs facility discharged within 2,4,5-T Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,6-TCP		
5	#yrs facility discharged within 2,4,6-TCP Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Summary DMassCOC for Direct Discharge:		
49,175.28	kg Copper	
40,836.53	kg Lead	
289.89	kg Mercury	
1,850,387.36	kg HPAHs	
1,233,591.57	kg LPAHs	
-	kg PCBs	
-	kg DDx	

- kg Dieldrin	
- kg Dioxins/Furans	

Facility Base Scores, Culpability Factor, Cooperation Factor and Adjusted Base Scores - Protocol Calculation

PMC, Inc.

450 Schuyler Avenue

Kearny

NJ

Facility BS	CUF	CUF_Category	CUF_NOTES	COF	COF_NOTES	Facility Adjusted BS
4.923E-3	10.0%	Periodic Noncompliance	The PVSC permit request filed in September 1985 was in response to a civil action by the EPA against Kleer Kast for violation of the federal Clean Water Act for discharging contact cooling water to Frank's Creek. On July 1, 1986, the company began discharging contact cooling water to the PVSC system rather than to surface water (PAS-00015237; PAS-00015262; PAS-00015264; PAS-00015296-298; PAS-00015302-303). On March 6, 1990, Kleer Kast reported to PVSC that approximately 50 gallons of Number 6 fuel oil were discharged to the sewer during a 1-hour period. The discharge resulted from a leak in a fuel oil recirculating line. PVSC issued a NOV to Kleer Kast on March 7, 1990 for the discharge (PAS-00015134-136; PAS-00015134-6). During a June 9, 1994 facility inspection, NJDEP documented that an oil-like substance was leaking from the foundation of the loading dock area of Alexandria Plastics, a tenant at the Kleer Kast Site (PAS-00014840; PAS-00015208).	20.0%	20% Failed to participate in conduct of allocation as offered by EPA	6.400E-3

AP_ABS

6.400E-3

ARR2650

Facility Base Scores, Culpability Factor, Cooperation Factor and Adjusted Base Scores - Allocation Calculation

PMC, Inc.

450 Schuyler Avenue

Kearny

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Facility BS	CUF	CUF_Category	CUF_NOTES	COF	COF_NOTES	Facility Adjusted BS
2.138E-1	10.0%	Periodic Noncompliance	The PVSC permit request filed in September 1985 was in response to a civil action by the EPA against Kleer Kast for violation of the federal Clean Water Act for discharging contact cooling water to Frank's Creek. On July 1, 1986, the company began discharging contact cooling water to the PVSC system rather than to surface water (PAS-00015237; PAS-00015262; PAS-00015264; PAS-00015296-298; PAS-00015302-303). On March 6, 1990, Kleer Kast reported to PVSC that approximately 50 gallons of Number 6 fuel oil were discharged to the sewer during a 1-hour period. The discharge resulted from a leak in a fuel oil recirculating line. PVSC issued a NOV to Kleer Kast on March 7, 1990 for the discharge (PAS-00015134-136; PAS-00015134-6). During a June 9, 1994 facility inspection, NJDEP documented that an oil-like substance was leaking from the foundation of the loading dock area of Alexandria Plastics, a tenant at the Kleer Kast Site (PAS-00014840; PAS-00015208).	20.0%	20% Failed to participate in conduct of allocation as offered by EPA	2.780E-1

AP_ABS

2.780E-1

Allocation Facility Cmass Calculation

PPG Industries Inc.

29 Riverside Avenue

Newark

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Constituent Of Concern (COC)	Overland, Fate & Transport C%	Dmass Overland, Fate & Transport	PrePVSC C%	Dmass PrePVSC	PVSC C%	Dmass PVSC	Direct Discharge C%	Dmass Direct Discharge	COC Total Pathway Cmass	COCA%	COC Historic CMass
Copper	100.00%	32.69	100.00%	-	0.00%	-	100.00%	-	32.69	1.018817E-2	0.33
Lead	100.00%	283.93	100.00%	-	0.00%	-	100.00%	-	283.93	1.018817E-2	2.89
Mercury	100.00%	0.31	100.00%	-	0.00%	-	100.00%	-	0.31	1.018817E-2	0
HPAHs	100.00%	0.83	100.00%	-	0.00%	-	100.00%	-	0.83	1.018817E-2	0.01
LPAHs	100.00%	5.26	100.00%	-	0.00%	-	100.00%	-	5.26	1.018817E-2	0.05
PCBs	100.00%	0.38	100.00%	-	0.00%	-	100.00%	-	0.38	1.018817E-2	0
DDx	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
Dieldrin	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0
Dioxins_Furans	100.00%	-	100.00%	-	0.00%	-	100.00%	-	0	1.018817E-2	0

Allocation Facility COC Base Scores - Protocol Calculation

PPG Industries Inc.

29 Riverside Avenue

Newark

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Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	COC Historic CMass	COC Relative Contribution	COC Base Score
Copper	0.69	2,100,000.00	0.33	1.586E-7	1.094E-7
Lead	0.01	3,200,000.00	2.89	9.040E-7	9.040E-9
Mercury	0.95	42,000.00	0	7.520E-8	7.144E-8
HPAHs	0.05	240,000.00	0.01	3.523E-8	1.762E-9
LPAHs	0.01	170,000.00	0.05	3.152E-7	3.152E-9
PCBs	12.87	26,000.00	0	1.489E-7	1.916E-6
DDx	1.37	27,000.00	0	0	0
Dieldrin	0.13	390.00	0	0	0
Dioxins_Furans	83.92	38.00	0	0	0

Allocation Facility COC Base Scores - Alternative Calculation

PPG Industries Inc.

29 Riverside Avenue

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Constituent Of Concern (COC)	Relative Risk Number (RRN)	Total Mass (Tmass)	Total Cmass (TCmass)	Total OS COC ACmass	COC %	COC Historic CMass	Facility OS COC Cmass	COC Relative Responsibility	COC Base Score
Copper	0.69	2,100,000.00	276,960.25	2,097,178.28	1.180E-4	0.33	247.53	1.180E-4	8.144E-5
Lead	0.01	3,200,000.00	288,577.67	3,197,059.92	9.839E-4	2.89	3,145.57	9.839E-4	9.839E-6
Mercury	0.95	42,000.00	4,322.53	41,955.96	7.172E-5	0	3.01	7.172E-5	6.813E-5
HPAHs	0.05	240,000.00	4,346,388.50	195,718.24	1.910E-7	0.01	0.04	1.910E-7	9.548E-9
LPAHs	0.01	170,000.00	3,012,835.14	139,304.72	1.746E-6	0.05	0.24	1.746E-6	1.746E-8
PCBs	12.87	26,000.00	20,066.54	25,795.56	1.894E-5	0	0.49	1.894E-5	2.437E-4
DDx	1.37	27,000.00	2,516.93	26,974.36	0	0	0	0	0
Dieldrin	0.13	390.00	1.27	389.99	0	0	0	0	0
Dioxins_Furans	83.92	38.00	3,729.82	0.00	0	0	0	0	0

Facility Bypass Information

PPG Industries Inc.

29 Riverside Avenue

Newark

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Item	Bypass Name	Bypass Type	Time %	Flow %	Bypass Notes
1	Newark Bay	Bypass	0.00%	0.00%	Did not discharge waste into the Passaic river

Discharge Calcs	POTW Discharge Information	COMMENTS/NOTES
	gal discharged per day/week/month	Limited to no discharge data
	# hours/per day discharged	Operations from 1902-1971
7	#days/week discharged	Connect to PVSC in 1900s through the Delavan Ave Connector (PAS-0044291)
52	#weeks/yr discharged	No information on discharge volumes, flows or water quality
37,500,000	calc gal/yr discharge	Manufacturer of Paint and paint products - using Sherwin Williams to estimate
1902	Yr Ops started	Volume reduced by 50% due to statement about liquid wastes potentially being hauled off
1971	Yr Ops ceased	No information on Storm water since on the banks of the Passaic assuming direct to Passaic
69	calc #yrs facility operated	
Copper (Cu)		
69	#yrs facility discharged	Based on Sherwin Williams
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Lead (Pb)		
69	#yrs facility discharged	Based on Sherwin Williams
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Mercury (Hg)		
69	#yrs facility discharged	Based on Sherwin Williams
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
HPAHs		
69	#yrs facility discharged	
-	calc mg/L O&G	
10%	% O&G that is considered PAHs	
50%	% COC in O&G considered as PAHs	
-	calc mg/L HPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
LPAHs		
69	#yrs facility discharged	
-	calc mg/L O&G	
10%	% O&G that is considered PAHs	
50%	% COC in O&G considered as PAHs	
-	calc mg/L LPAHs	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
PCBs		
43	#yrs facility discharged within PCBs Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
DDx		
32	#yrs facility discharged within DDx Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dieldrin		
22	#yrs facility discharged within Dieldrin Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxins/Furans		
69	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4-D		
26	#yrs facility discharged within 2,4-D Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,5-T		
27	#yrs facility discharged within 2,4,5-T Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,6-TCP		
22	#yrs facility discharged within 2,4,6-TCP Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Summary DMassCOC for POTW:		
-	kg Copper	
-	kg Lead	
-	kg Mercury	
-	kg HPAHs	
-	kg LPAHs	
-	kg PCBs	
-	kg DDx	
-	kg Dieldrin	

-	kg Dioxins/Furans	
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Discharge Calcs	Direct Discharge Information	COMMENTS/NOTES
	# hours/day discharged	
	# days/week discharged	No information on Storm water however site is on bank of Passaic so assuming discharge to Passaic
	# weeks/yr discharged	Assuming data from POTW at 25%
-	# gals/yr directly discharged	
4.08	ft; 30yr average annual precipitation per Rutgers information	
43,560	ft2 per acre	
7.00	acres	
50%	Percent Precip to River	
1902	Yr Ops started	
1973	Yr Ops ceased	
69	calc #yrs facility operated	
Copper (Cu)		
69	#yrs facility discharged	
0.07	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Lead (Pb)		
69	#yrs facility discharged	
0.13	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Mercury (Hg)		
69	#yrs facility discharged	
0.0003	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
HPAHs		
69	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
LPAHs		
69	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
PCBs		
43	#yrs facility discharged within PCBs Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
DDx		
32	#yrs facility discharged within DDx Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dieldrin		
22	#yrs facility discharged within Dieldrin Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxins/Furans		
69	#yrs facility discharged	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4-D		
26	#yrs facility discharged within 2,4-D Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,5-T		
27	#yrs facility discharged within 2,4,5-T Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Dioxin/Furan Precursor - 2,4,6-TCP		
22	#yrs facility discharged within 2,4,6-TCP Timeline	
-	calc mg/L COC discharged	
3.785	L per gallon (Merck Index)	
0.000001	kg per mg (Merck Index)	
-	calc kg COC discharged	
Summary DMassCOC for Direct Discharge:		
-	kg Copper	
-	kg Lead	
-	kg Mercury	
-	kg HPAHs	
-	kg LPAHs	
-	kg PCBs	
-	kg DDx	
-	kg Dieldrin	
-	kg Dioxins/Furans	

Discharge Calcs

Direct Discharge Information
4.08 FEET/YEAR AVERAGE PRECIPITATION

ASSUMPTIONS, REFERENCES
Long term average annual precipitation includes floods and hurricane events occurring over time.

COMMENTS/NOTES
Data from Rutgers University.

7 ACRES - TOTAL SITE AREA (acres)
1.40 ACRES - AFFECTED AREA

80 percent of site is covered with impervious material and buildings (FDR Page 15, PAS-00044334).
Affected area reflects the referenced 20% bare/unpaved portion of the total 7 acres.

4,046.86 METERS²/ACRE

5,666 METERS² (AFFECTED AREA)

0.0001 METERS/YEAR (ERODED SOIL THICKNESS)

For this estimate, used a surface soil erosion rate of 0.1 mm/year, or 0.004 inches/year.

1 METERS³/YEAR (ERODED SOIL VOLUME)

VOLUME/YEAR DISCHARGED TO PASSAIC RIVER

1902 Year site operations began
1971 Year site processing and storage operations ceased

FDR page 1, PAP-00037404
FDR page 1, PAP-00037404

69 NUMBER YEARS DISCHARGE

39 METERS³ (TOTAL SOIL VOLUME DISCHARGED OVER TIME)

1,963 KG/M³ SOIL DENSITY

Fill reported as silt, sand, and gravel (PAP-00305946-48). Bulk density range for silty sand and gravel 1442 KG/M³ to 2483 KG/M³, so use average. (http://structx.com/Soil_Properties_002.html)

76,739 KILOGRAMS (TOTAL SOIL DISCHARGED OVER TIME)

Copper (Cu)

69 YEARS DISCHARGED
426 MG/KG (MAX CONCENTRATION)

Other metals not listed here (i.e. not COCs) were detected in onsite soil

Copper concentration in on-site surface soil sample B-53 (0-1). (PAP-00305850).

0.000001 kg per mg (Merck Index)
32.69 KILOGRAMS DISCHARGED

Lead (Pb)

69 YEARS DISCHARGED
3700 MG/KG (MAX CONCENTRATION)

Lead concentration in on-site surface soil sample B-30 (0-1) (PAP-00305846).

0.000001 kg per mg (Merck Index)
283.93 KILOGRAMS DISCHARGED

Mercury (Hg)

69 YEARS DISCHARGED
4.0 MG/KG (MAX CONCENTRATION)

Mercury concentration in on-site fill sample B-38 (PAP-00305848).

0.000001 kg per mg (Merck Index)
0.31 KILOGRAMS DISCHARGED

PAHs (listed in Benzo(a)pyrene Equivalent conversion table)	Total concentration of PAH compounds for Benzo(a)pyrene Equivalent https://floridadep.gov/waste/petroleum-restoration/documents/benzo-pyrene-equivalents-conversion-table-one-sample
69 YEARS DISCHARGED	
10.8 MG/KG (TOTAL PAH MAX CONCENTRATION)	Sum of Benzo(a)pyrene Equivalent conversion concentrations using maximum concentrations found in surface soil (0-3 ft bgs) sample, B-63(1-3)-101117 (PAP-00305839). Historic fill was not a consideration for PAH concentrations for the purpose of this calculation.
0.000001 kg per mg (Merck Index)	
0.83 KILOGRAMS DISCHARGED	
PAHs (others detected)	
69 YEARS DISCHARGED	
68 MG/KG (TOTAL PAH MAX CONCENTRATION)	Other PAHs = Acenaphthene (7.6), Acenaphthylene (0.59 J), Anthracene (10), Fluorene (6.4), Naphthalene (3.9), Phenanthrene (40). Maximum PAH concentrations found in surface soil sample B-53(1-3) - PAP-00305837.
0.000001 kg per mg (Merck Index)	
5.26 KILOGRAMS DISCHARGED	Historic fill was not a consideration for PAH concentrations for the purpose of this calculation.
PCBs	
41 YEARS DISCHARGED	
5 MG/KG (MAX CONCENTRATION)	Number of years reflect a 1930 start date for PCBs. Total PCBs concentration in on-site surface soil sample B-52 (0-1) (PAP-00305864). Transformers were likely present at the site because most manufacturing operations had transformers containing PCBs during PPG's period of operation. These could have led to releases from leaks, poor storage or disposal with replacement, or spills of PCB oils during refill. No change to the PCBs concentration because maximum values are used for the purpose of this calculation. A sample id with an alternative maximum value was not suggested.

0.000001 kg per mg (Merck Index)	
0.38 KILOGRAMS DISCHARGED	
DDx	
0 YEARS DISCHARGED within DDx Timeline	
NONE FOUND IN AVAILABLE DOCUMENTATION	
3.785 L per gallon (Merck Index)	
0.000001 kg per mg (Merck Index)	
0 KILOGRAMS DISCHARGED	
Dieldrin	
0 NONE FOUND IN AVAILABLE DOCUMENTATION	
MG/KG (MAX CONCENTRATION)	
3.785 L per gallon (Merck Index)	
0.000001 kg per mg (Merck Index)	
0 KILOGRAMS DISCHARGED	
Dioxins/Furans	

69 YEARS DISCHARGED	
0.00045655 MG/KG (MAX CONCENTRATION)	2,3,7,8-TCDD equivalent (calculated in table to the right). Data from on-site soil sample DF-6 (0-0.5). (PAP-00305871).
0.000001 kg per mg (Merck Index)	
0.0000350352 calc kg COC discharged	
SUMMARY CMASS ESTIMATES:	
32.69 kg Copper	
283.93 kg Lead	
0.31 kg Mercury	
0.83 kg PAHs (Benzo(a)pyrene Equivalent)	
5.26 kg PAHs (Other)	
0.38 kg PCBs	
0.00 kg DDx	
0.00 kg Dieldrin	
0.00 kg Dioxins/Furans	
323.40 MASS (KG) DISCHARGED FROM SURFACE SOIL	

Total concentration of PAH compounds for Benzo(a)pyrene Equivalent
<https://floridadep.gov/waste/petroleum-restoration/documents/benzo-pyrene-equivalents-conversion-table-one-sample>

Sum of Benzo(a)pyrene Equivalent conversion concentrations using maximum concentrations found in surface soil (0-3 ft bgs) sample, B-63(1-3)-101117 (PAP-00305839).
Historic fill was not a consideration for PAH concentrations for the purpose of this calculation.

Other PAHs = Acenaphthene (7.6), Acenaphthylene (0.59 J), Anthracene (10), Fluorene (6.4), Naphthalene (3.9), Phenanthrene (40). Maximum PAH concentrations found in surface soil sample B-53(1-3) - PAP-00305837.

Historic fill was not a consideration for PAH concentrations for the purpose of this calculation.

Contaminant	Concentration (mg/kg)	Toxic Equivalency Factor	Benzo(a)pyrene Equivalents
Benzo(a)pyrene	7.300	1.0	7.3000
Benzo(a)anthracene	8.900	0.1	0.8900
Benzo(b)fluoranthene	9.700	0.1	0.9700
Benzo(k)fluoranthene	3.300	0.01	0.0330
Chrysene	8.900	0.001	0.0089
Dibenz(a,h)anthracene	1.200	1.0	1.2000
Indeno(1,2,3-cd)pyrene	4.000	0.1	0.4000

DE Residential = 0.1 mg/kg; DE Industrial = 0.7 mg/kg
Total Benzo(a)pyrene Equivalents = 10.8

0.000001 kg per mg (Merck Index)	
0.38 KILOGRAMS DISCHARGED	
DDx	
0 YEARS DISCHARGED within DDx Timeline	
NONE FOUND IN AVAILABLE DOCUMENTATION	
3.785 L per gallon (Merck Index)	
0.000001 kg per mg (Merck Index)	
0 KILOGRAMS DISCHARGED	
Dieldrin	
0 NONE FOUND IN AVAILABLE DOCUMENTATION	
MG/KG (MAX CONCENTRATION)	
3.785 L per gallon (Merck Index)	
0.000001 kg per mg (Merck Index)	
0 KILOGRAMS DISCHARGED	
Dioxins/Furans	

69 YEARS DISCHARGED	
0.00045655 MG/KG (MAX CONCENTRATION)	2,3,7,8-TCDD equivalent (calculated in table to the right). Data from on-site soil sample DF-6 (0-0.5). (PAP-00305871).
0.000001 kg per mg (Merck Index)	
0.0000350352 calc kg COC discharged	
SUMMARY CMASS ESTIMATES:	
32.69 kg Copper	
283.93 kg Lead	
0.31 kg Mercury	
0.83 kg PAHs (Benzo(a)pyrene Equivalent)	
5.26 kg PAHs (Other)	
0.38 kg PCBs	
0.00 kg DDx	
0.00 kg Dieldrin	
0.00 kg Dioxins/Furans	
323.40 MASS (KG) DISCHARGED FROM SURFACE SOIL	

Contaminant	Concentration (mg/kg)	Toxic Equivalency Factor	2,3,7,8-TCDD Equivalents
2,3,7,8-TCDD	0.0000208	1.0	0.0000208
1,2,3,7,8-PeCDD	0.0000448	1.0	0.0000448
1,2,3,4,7,8-HxCDD	0.0000422	0.1	0.000042
1,2,3,6,7,8-HxCDD	0.0001800	0.1	0.0000180
1,2,3,7,8,9-HxCDD	0.0000936	0.1	0.000094
1,2,3,4,6,7,8-HpCDD	0.0014400	0.01	0.0000144
OCDD	0.019000	0.0003	0.000036
2,3,7,8-TCDF	0.0000405	0.1000	0.000041
1,2,3,7,8-PeCDF	0.0000349	0.0300	0.0000010
2,3,4,7,8-PeCDF	0.0008360	0.3000	0.0002508
1,2,3,4,7,8-HxCDF	0.0001760	0.1000	0.0000176
1,2,3,6,7,8-HxCDF	0.0001860	0.1000	0.0000186
1,2,3,7,8,9-HxCDF	0.0000275	0.1000	0.0000028
2,3,4,6,7,8-HxCDF	0.0004070	0.1000	0.0000407
1,2,3,4,6,7,8-HpCDF	0.0005000	0.0100	0.0000050
1,2,3,4,7,8,9-HpCDF	0.0000599	0.0100	0.000006
OCDF	0.0008510	0.0003	0.000003

Total 2,3,7,8-TCDD Equivalents = 0.00045655

Facility Base Scores, Culpability Factor, Cooperation Factor and Adjusted Base Scores - Protocol Calculation

PPG Industries Inc.

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Facility BS	CUF	CUF_Category	CUF_NOTES	COF	COF_NOTES	Facility Adjusted BS
2.111E-6	5.0%	Occasional Noncompliance	Indications of direct dumping of containers to river, as reported in an affidavit of a former employee, though he stated that he had no knowledge of the contents of the containers (PAS-00080135; PAS-00080161-62). According to former employees, a fire in the resin building occurred in 1969 but did not result in resin material reaching the river. The resin material was confined to the building (PAS-00044290). According to a PPG employee, a vapor cloud was released from one of the resin reactors in Building 17. Newark City firefighters pumped water from the river into the building and nearby storage tanks to attempt to contain the fire. The building was damaged beyond repair during the fire and was later demolished (PAS-00006303).	-20.0%	-20% CPG/SPG member - Continuous provision of funding and participation in PRP Group(s) actions to cooperate with governmental/regulatory entities to address environmental or public harm created by own activities	1.795E-6

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1.795E-6

Facility Base Scores, Culpability Factor, Cooperation Factor and Adjusted Base Scores - Allocation Calculation

PPG Industries Inc.

29 Riverside Avenue

Newark

NJ

07104

Facility BS	CUF	CUF_Category	CUF_NOTES	COF	COF_NOTES	Facility Adjusted BS
4.032E-4	5.0%	Occasional Noncompliance	Indications of direct dumping of containers to river, as reported in an affidavit of a former employee, though he stated that he had no knowledge of the contents of the containers (PAS-00080135; PAS-00080161-62). According to former employees, a fire in the resin building occurred in 1969 but did not result in resin material reaching the river. The resin material was confined to the building (PAS-00044290). According to a PPG employee, a vapor cloud was released from one of the resin reactors in Building 17. Newark City firefighters pumped water from the river into the building and nearby storage tanks to attempt to contain the fire. The building was damaged beyond repair during the fire and was later demolished (PAS-00006303).	-20.0%	-20% CPG/SPG member - Continuous provision of funding and participation in PRP Group(s) actions to cooperate with governmental/regulatory entities to address environmental or public harm created by own activities	3.427E-4

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3.427E-4